

THE CONTRACT JOURNAL

INCORPORATING

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

No. 4,295 83rd YEAR

THURSDAY, OCTOBER 19, 1961

PRICE 2/-

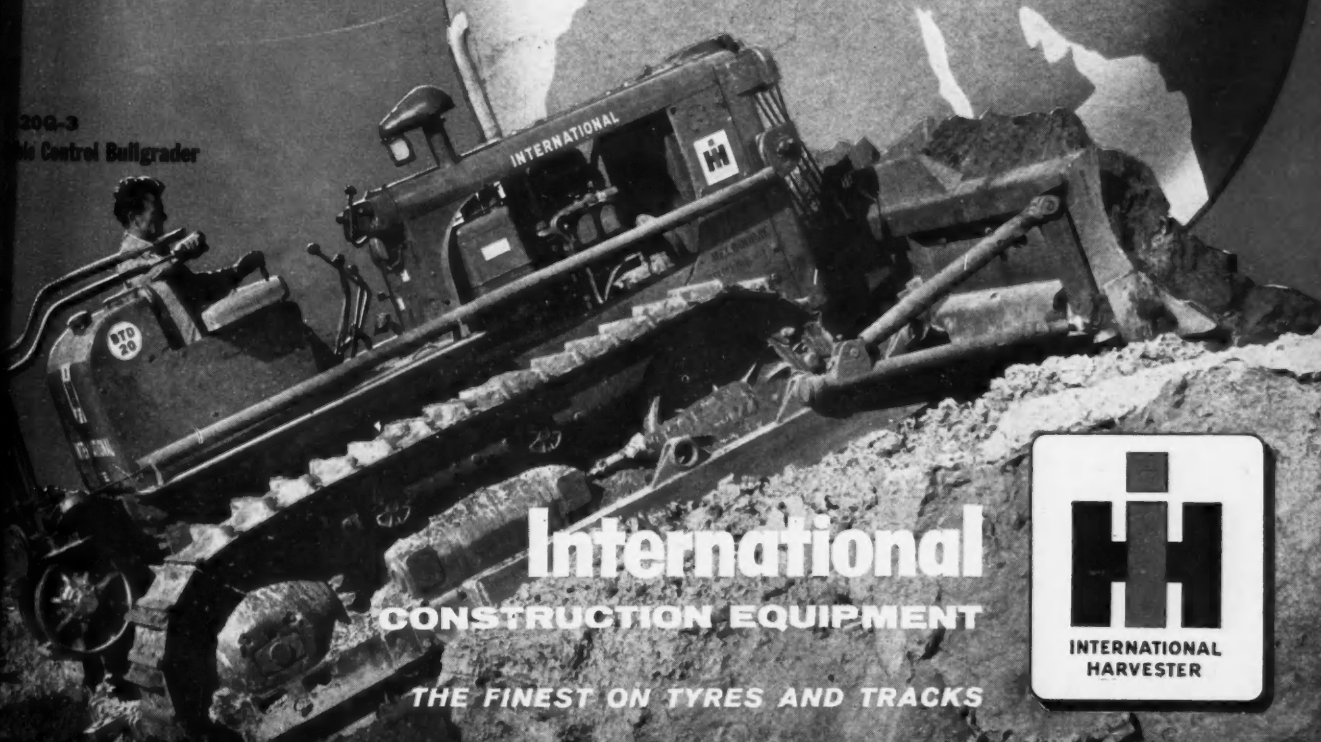
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Wins international acclaim

Only crawler of its size with six speed full reverse
transmission that can double your 'dosing and
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20,000 lb of push in first gear or with 21,000 lb in
second gear and backs out as fast as 8.4 m.p.h.—
moving hundreds more yards daily! With its full
range of job-matched equipment, the BTD-20
providing the BIG power that gets BIGGER.
Ideal for the BIGGEST projects throughout the
world. Ask your International
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200-3

Hydraulic Control Bulldozer



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THE FINEST ON TYRES AND TRACKS



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WHITLOCK BROS. LTD. GREAT YELDHAM

WHITLOCK ALSO PROVIDE A COMPLETE RANGE

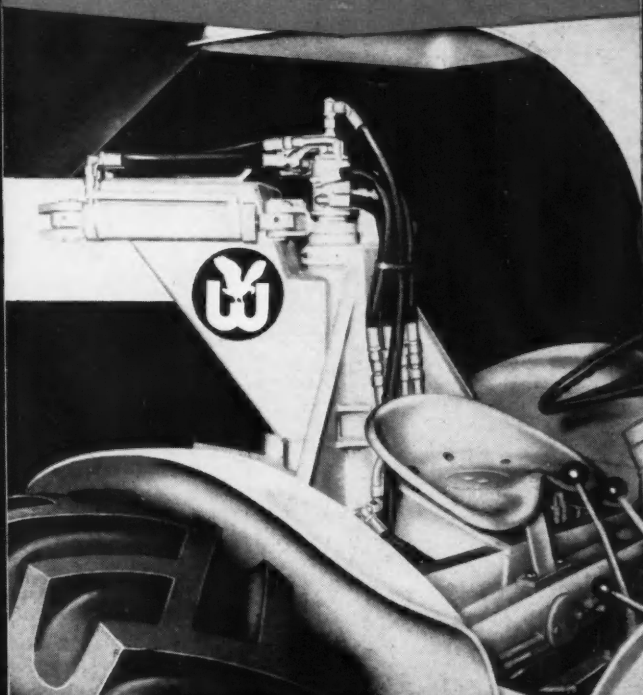
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13 ft RADIUS

Inside the Cab

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**10 TON LOADS
FOR 10/-A DAY**

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- ★ POWERFUL TRACTION
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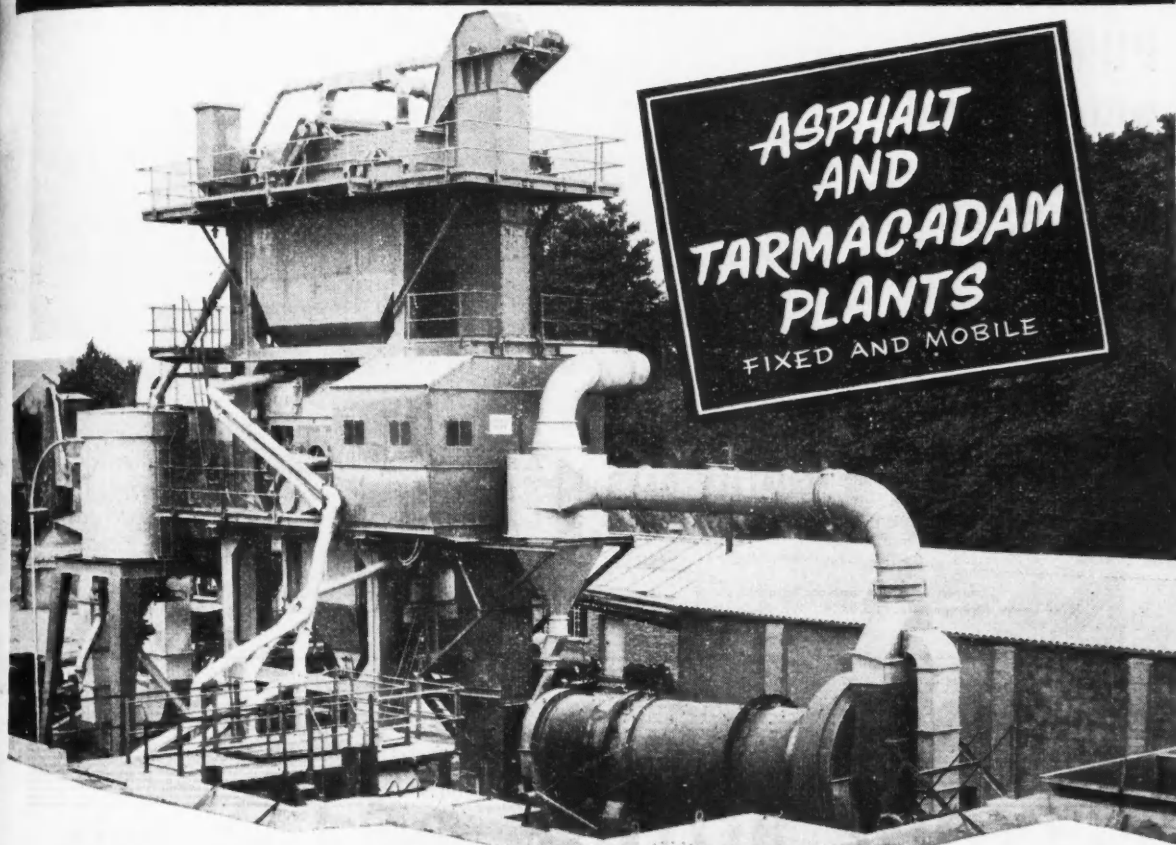


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*Included in the orders received **THIS YEAR** we have had **REPEAT ORDERS** from the following...*

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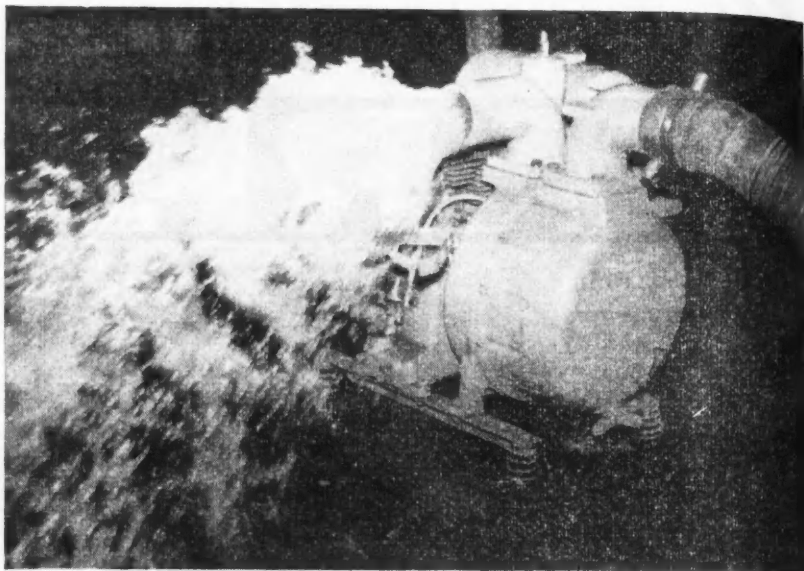
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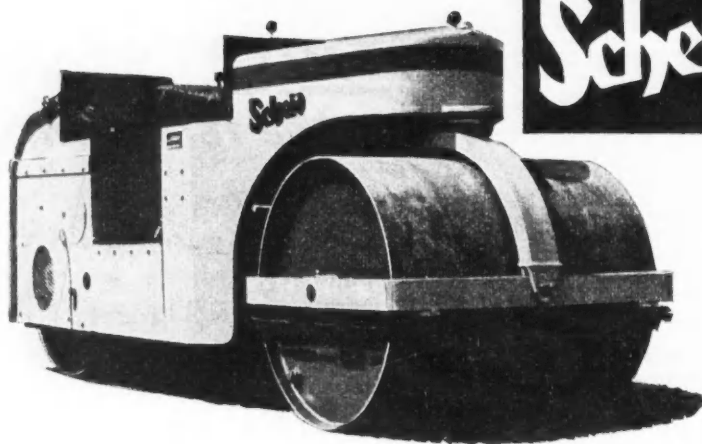
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**HIGH COMPACTING POWER
LOW OPERATING COST**

Two models available :- Type 20 working weight of 4,400 lbs., type 25 working weight of 9,500 lbs.

- Electrically started, air cooled, diesel engine
- ★ spring adjusted scrapers
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FIRST
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Whatever the conditions, the Yale Tractor Shovel thrives on heavy work. This rugged equipment fitted with a 2 cu. yd. capacity full width bucket is driven by a Leyland U.E. 350 Diesel engine and is the fastest and easiest operated machine of its type available.

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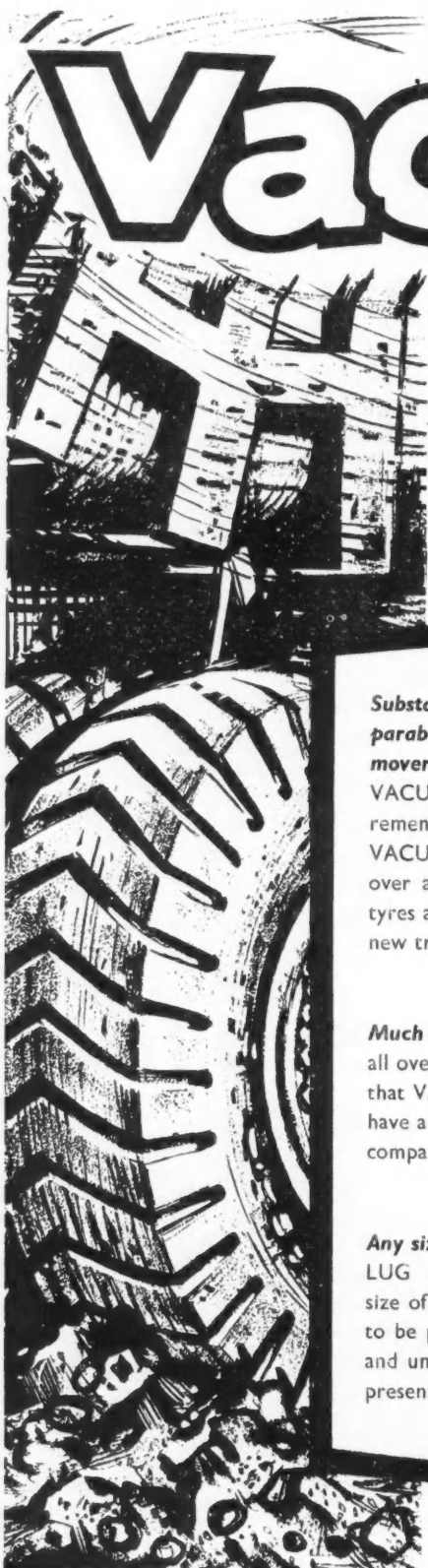
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Telephone: Garston 3266/7/8.

ESTABLISHED FOR OVER 40 YEARS





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REGD. TRADE MARK

*** LONGER LIFE**
*** GREATER GRIP**
*** LOWER COST**

More and more tyres are being VACU-LUG reconditioned every year. Add up the reasons for yourself.

Substantially cheaper than comparable remoulds of large earth-mover tyres—thanks to unique VACU-LUG reconditioning. And remember, sound covers can be VACU-LUG reconditioned over and over again, saving the cost of new tyres and always giving better-than-new traction.

Much longer life. Reports from users all over the world regularly confirm that VACU-LUG reconditioned tyres have a much longer working life than comparable remoulds.

Any size, any tread. Unique VACU-LUG reconditioning allows every size of tyre and every tread pattern to be processed immediately. New and unusual sizes or imported tyres present no problem.

International on-the-spot service means that contractors all over the world, from Kariba to the Snowy Mountains, can have immediate reconditioning from their local VACU-LUG company—no waiting, no time or money lost.

Better-than-new traction. With VACU-LUG reconditioning both the profile and tread design can be varied to suit working conditions. A tyre can be given a squarer profile for maximum ground contact and more powerful pull.

Triumph in toughest conditions. Contractors working where conditions are tropical or arctic, on mountainsides and in equatorial jungles know that the greater gripping power of VACU-LUG reconditioned tyres helps them pull through in the toughest conditions.

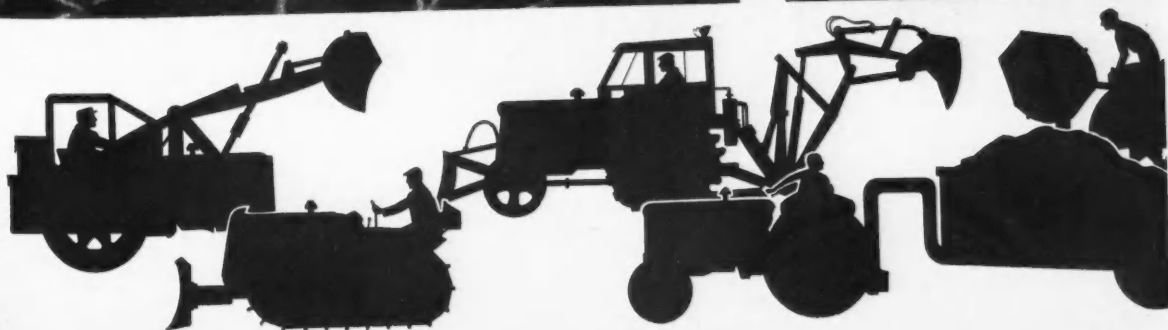
*** SO THIS YEAR SPECIFY VACU-LUG AND SAVE 6 WAYS**

BRITISH VACU-LUG LIMITED • GONERBY HILL FOOT • GRANTHAM • Lincs.



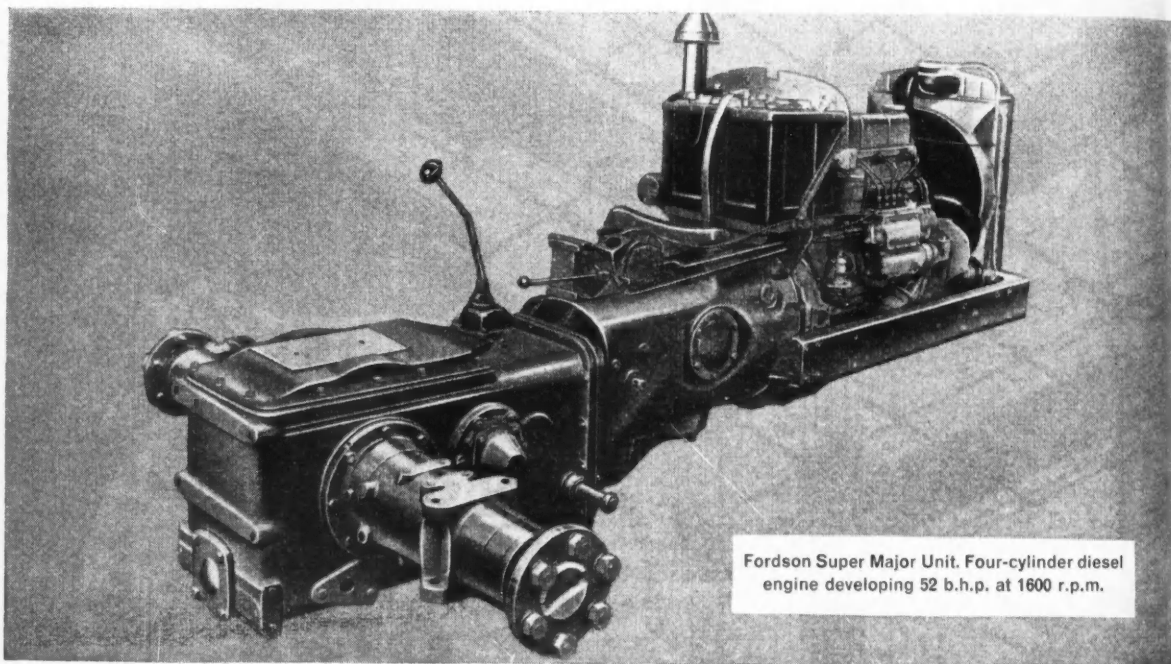
QUARRYING • EARTH MOVING • BUILDING • ROAD WORKS • EXCAVATIONS • HAULAGE • DEMOLITIONS • DRAINAGE

FORDSON POWER
saves
on
every
site

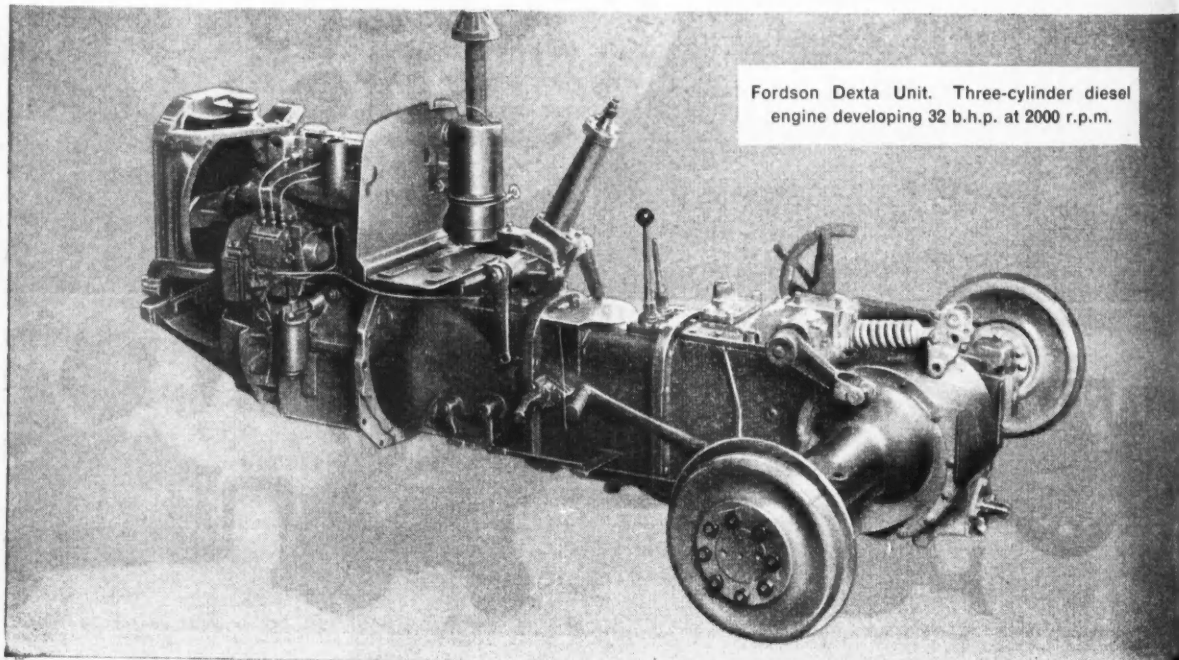


FORDSON POWER CUTS operating costs

Fordson Power is the first choice of Britain's equipment manufacturers. And outstanding among the many reasons for that choice is its outstanding economy, which is emphasised by its exceptional capacity for work. Work is done quicker—at less cost with Fordson Power.



Fordson Super Major Unit. Four-cylinder diesel engine developing 52 b.h.p. at 1600 r.p.m.



Fordson Dexta Unit. Three-cylinder diesel engine developing 32 b.h.p. at 2000 r.p.m.

There's an outstanding reliability in Fordson powered equipment, a tough ability to work hard in the worst conditions—and to keep going. And with Fordson Power you're sure not only of swift and efficient service anywhere, but of service at low, fixed charges.

FORDSON POWER
CUTS
maintenance costs



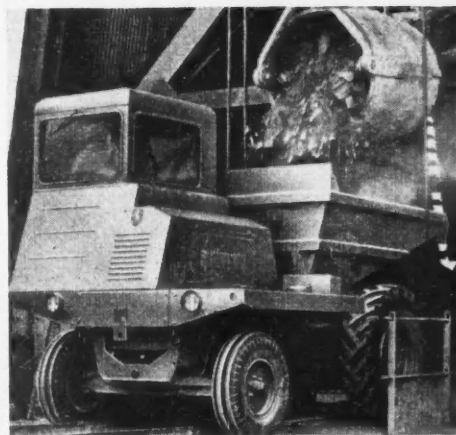
Four-wheel drive Bray Loader



Muir Hill Dumper



Weatherhill Shovel



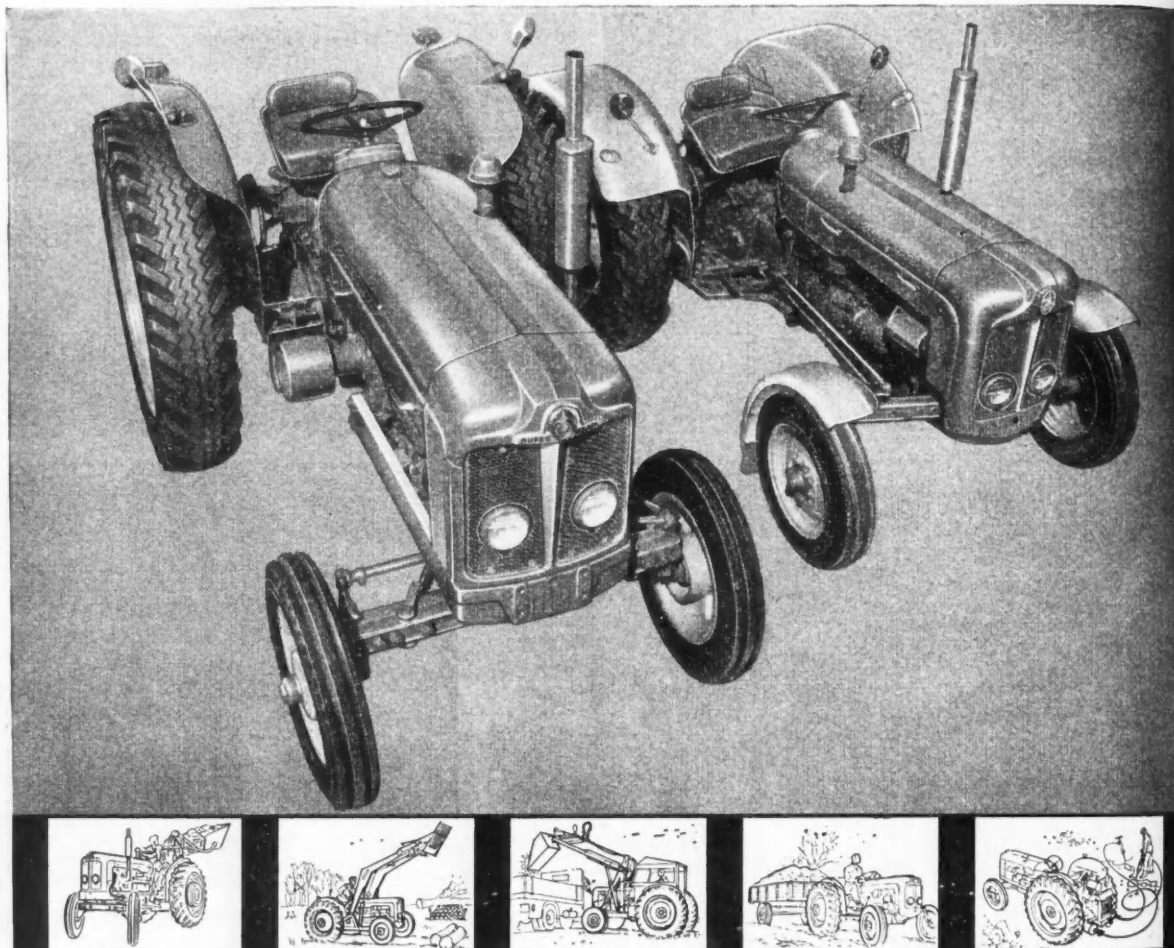
Aveling Barford Dumper



J.C.B.4 Excavator/Shovel

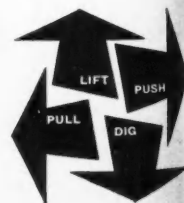


Fordson Power is available in an infinite variety of specialised forms, but there's a place, too, on every site for a Fordson industrial tractor. There's no more versatile piece of plant, nor a more hardworking unit. Take full advantage of the many attachments available and your Fordson tractor (52 bhp Fordson Super Major or 32 bhp Fordson Dexta) will have a utilisation factor nothing else will equal. Right round the clock it will speed the job, and save plant and running costs in doing it.



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With the **STRENGTH** and **DESIGN** of BHC HOISTS and WINCHES, Builders are operating equipment with the highest performance available today. From the largest multi-story building to the smallest housing project there is a BHC hoist to meet your lifting requirements. Handling loads from 5 to 50 cwt., BHC hoists operate with complete reliability under ALL site conditions.

The BHC range of hoists & winches includes:

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15-50 cwt. 100/230 ft. min. Write for Brochure D 1

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AUTOMATIC CONCRETE ELEVATOR

Capacity 12½ & 18½ cu. ft. Brochure D 1

ANT QUEEN MOBILE HOIST

Capacity 7-10 cwt. Brochure B 1

SAGA JUNIOR & SCAFFOLD JIB CRANE

Capacity up to 5 cwt. Brochure A 1

SAGA POWER WINCHES

Diesel or Electric Brochure C 1

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COMPANY LIMITED**



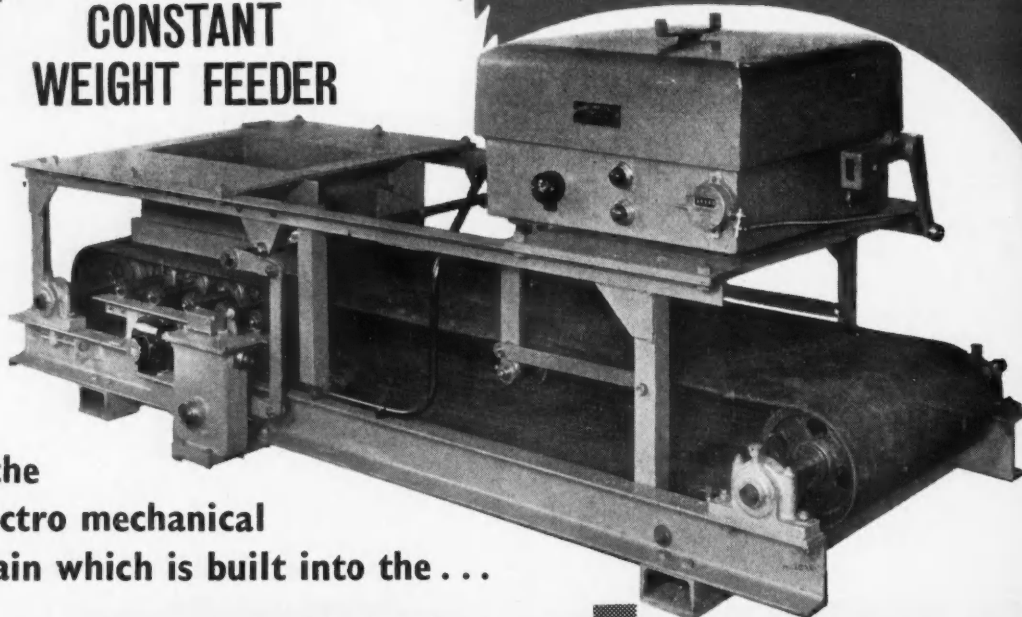
COMPTON • NEWBURY • BERKSHIRE

TELEPHONE: COMPTON 234 (5 LINES)

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CONSTANT
WEIGHT FEEDER**

**READY MIXED CONCRETE PLANT
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BATCHING AND
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Fully automatic Batching
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to deliver a continuous
output of mixed concrete
into truckmixers or
agitators OF ANY SIZE at
the rate of up to 3 CU. YDS
per minute.

- * NO WEIGH LEVERS TO PULL!
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HUMAN ELEMENT IN WEIGHING!

WRITE NOW FOR FULL DETAILS OF THIS RANGE OF PLANT
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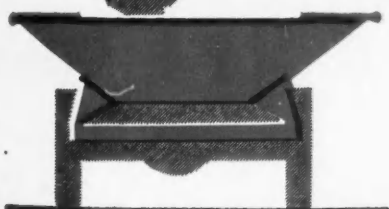
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THWAITES

The best allround dumper yet — heres why



Strength • Balanced Design • Reliable

Thwaites Two-way side discharge dumper doubles up dumper versatility. Provides hydraulically controlled side discharge of material to left or right of dumper whilst travelling under load. Discharge is by finger tip control on steering column, 1' 3" above ground level. Lip of the skip is within the driver's vision at all times. Low centre of gravity, balanced design, ruggedness of construction. All features that add up to Thwaites value for money.

Thwaites

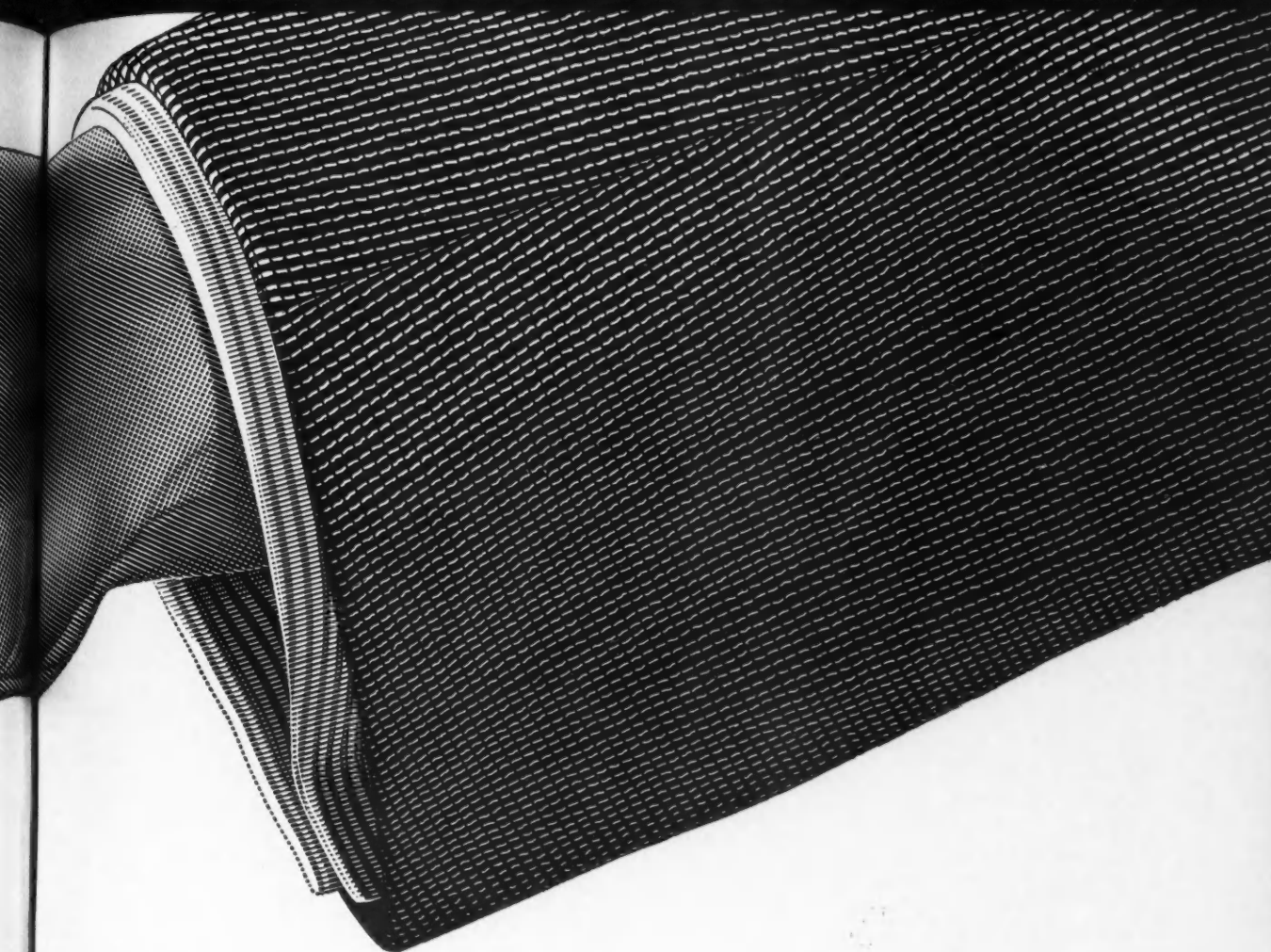
DIESEL DUMPER SPECIALISTS

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Squeezing the utmost from each working day ...





CASE equipment

Faster, easier operating cycle for bonus output, unique 12-months-guaranteed Terramatic drive and proved Case reliability are featured in Case crawlers—years ahead in design for years to come.

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With unrivalled Case service, fast on the job equipment stays on the job. Automatic free service at 50, 250 and 500 hours; regular free inspection and advice; service flying squad for emergencies; in a word—service!

...that's the case for **CASE**

CASE experience

Behind every Case tractor is over 100 years of making quality machinery backed by prompt efficient service. Before you move another cube yard write or phone for further details of Case equipment.



J.I. CASE COMPANY LTD *WORLD LEADERS IN EARTHMOVING TRACTOR DESIGN*

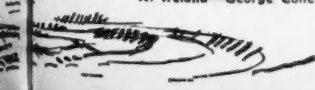
West Drayton · Middlesex West Drayton 3221

Stanningly · Leeds Pudsey 77225

Sole Distributors: Scotland—Scottish Plant Sales Ltd. Shettleston S241/2/3

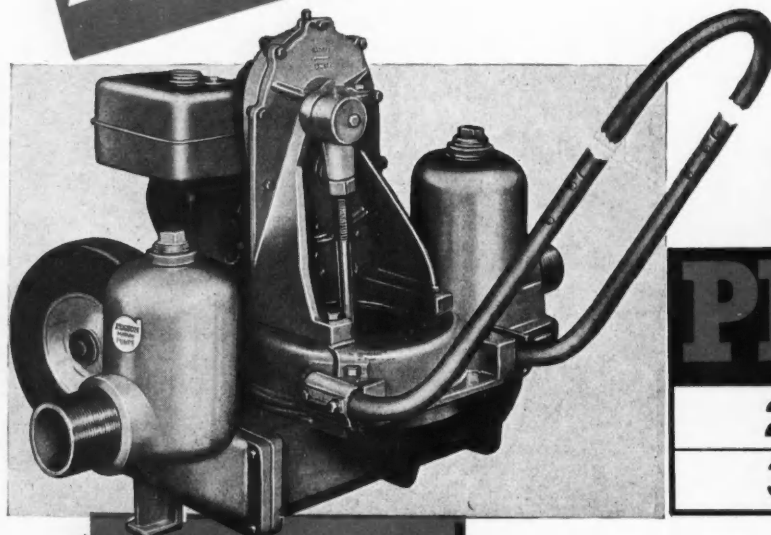
Wales—Wm. Lewis (Tractors) Ltd. Cardiff 35651

N. Ireland—George Cohen Sons & Co. Ltd. Belfast 59211



AT LAST!

a really lightweight 'MUD HOG'



THE NEW

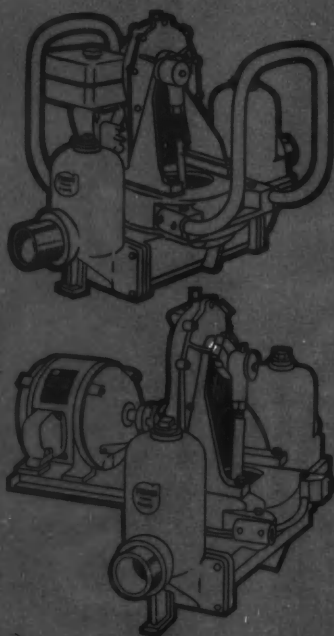
PEGSON	
MARLOW	
2"	202 B
3"	302 B

Weights 126lbs.—handles sludge and trash-laden liquids with ease.

Here is the pump Contractors have been waiting for—lightweight, instantly portable and capable of doing all those sludge-moving jobs where the expense of a heavy duty mud hog is not justified. Made in 2" and 3" sizes, the new Pegson Lightweight Mud Hog is of aluminium construction, powered by lightweight petrol engine and can be supplied either on baseplate, on trolley for one-man wheeling or with handles for two-men carrying. Electric motor in lieu of petrol engine drive also available.

FEATURES

- Designed for maximum portability—126lbs. on base, 137lbs. on trolley.
- Air vessels fitted as standard—give smooth, non-pulsating flow.
- All working parts totally enclosed—require minimum attention.
- Will work on snore.
- Contemporary appearance yet built for long, hard service.
- Capacities up to 60 g.p.m.—total heads up to 45ft.



On a trolley, one man can wheel it easily; with lifting handles, two men can carry it without effort, or a truck transport it quickly; on a baseplate it can be readily bolted to any mounting.

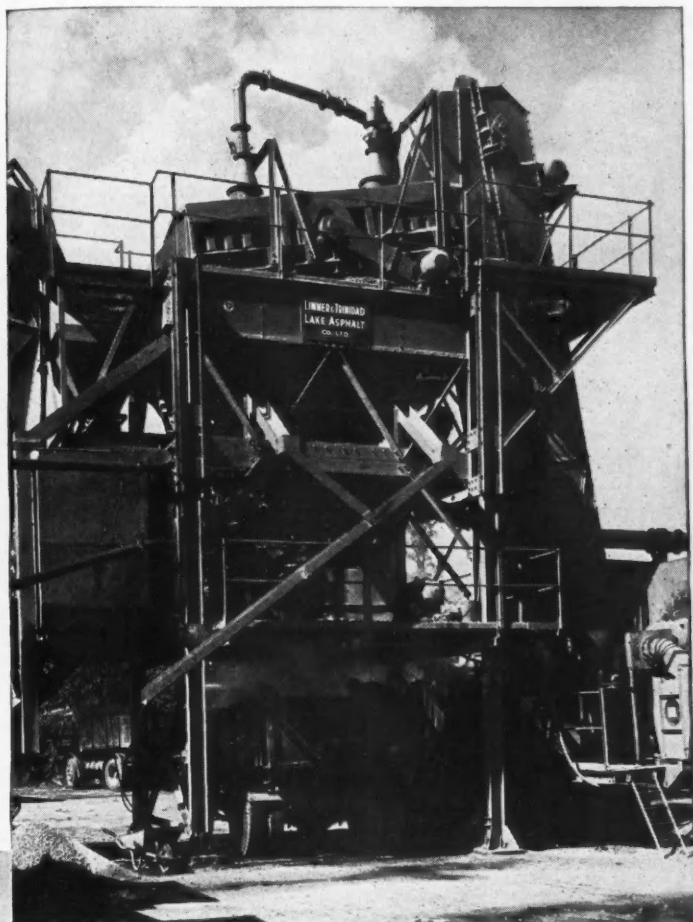
PEGSON

Built within the Bentley Group by

PEGSON LTD · COALVILLE · LEICESTERSHIRE · Tel: 1234 (10 lines)

London Office: Iddesleigh House, Caxton Street, S.W.1. Telephone: Abbey 2373.

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GOOD-WIN**60/90 ASPHALT PLANTS****PAVE BRISTOL-BIRMINGHAM MOTORWAY**

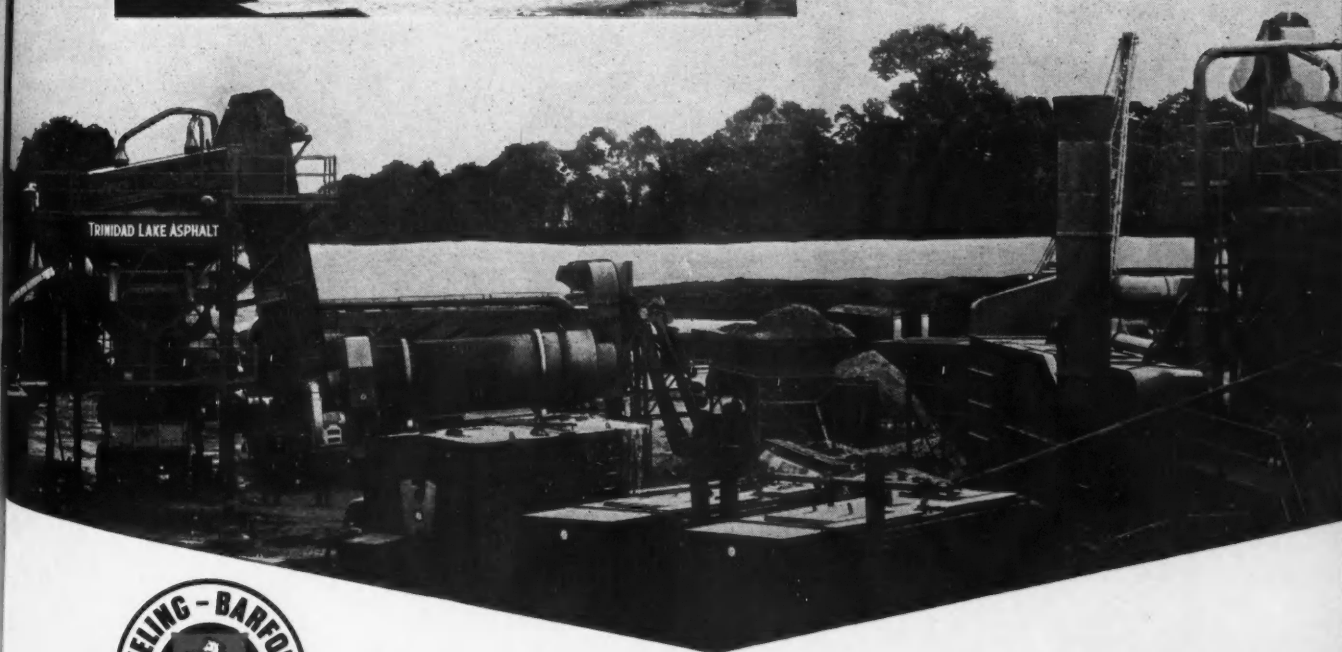
Four Goodwin 60/90 Asphalt Plants owned by Limmer & Trinidad Lake Asphalt Co. Ltd., are now operating on the new Bristol-Birmingham Motorway. Their task is to supply material for the base and wearing courses of the 28 mile length of motorway.

The two plants shown below are sited together at Defford and the other pair near Droitwich.

For full particulars of Goodwin 60/90 portable and fixed asphalt plants, please write for Catalogue No. 1866.

Limmer & Trinidad Lake Asphalt Co. Ltd. now have seven Goodwin 60/90 Asphalt Plants.

*Photographs by courtesy of
Limmer & Trinidad Lake Asphalt Co. Ltd.*



**GOODWIN BARSBY & CO. LTD. LEICESTER
ENGLAND**

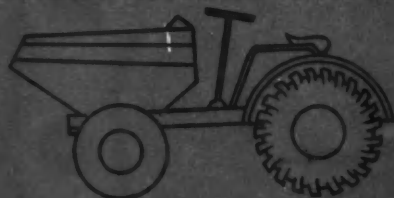
PUSH



YOURS IS THE CHOICE! If you favour rear wheel thrust, the 4S-R is for you. If, however, you believe in the virtues of front wheel traction, you won't find better than the 4S-F. Winget Muir-Hill give you the best of *both* worlds, and you can be certain that, whichever you choose, you'll get a dumper with real drive! The Petter and Lister diesel engines (optional alternatives) both have tremendous

Winget Muir-Hill Red Devil Diesel Dumpers

REAR WHEEL DRIVE



4S-R

designed for diabolical conditions!



HOR PULL!

power and stamina, and the versatile tractor-type driving wheels have the grip and resilience to make light of the most treacherous site conditions. Red Devils, including the 2S (15 cwt.) and 3S (22½ cwt.), are designed and engineered to work really hard *24 hours a day!* They're economical, tough as they come, and easy to handle. What more can you ask? Send for full details of the Red Devil range... and receive specifications of *your* ideal dumper!



Model 4S (30 cwt payload)

Further details from:

WINGET LIMITED, ROCHESTER, KENT

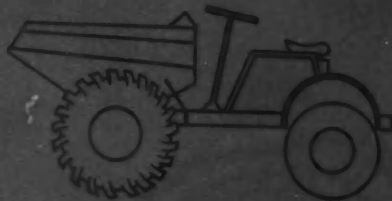
Telephone: Strood, Kent 78641

or

E. Boydell & Co. Ltd. Elsinore Rd., Old Trafford, Manchester 16

Telephone: Trafford Park 1641

FRONT WHEEL DRIVE



4S-F



**'sturdy
as it
goes'**



11-RB TRANSIT MACHINE

**RUSTON-
BUCYRUS**

9-Ton Crane

Independent power-controlled boom hoist.
Swing brake and mechanical lock.
Power-controlled load lowering (main hoist).
Booms 25 ft. to 70 ft.: 10 ft. or 20 ft. offset jib.
Crane features to BSI recommendations
(tubular boom).

Convertible to $\frac{1}{2}$ cubic yard excavator

Shovel—rope crowd.
Dragshovel—cambered boom, hoe dipper.
Dragline or grab—25 ft to 40 ft boom.

Write for leaflet RB1600

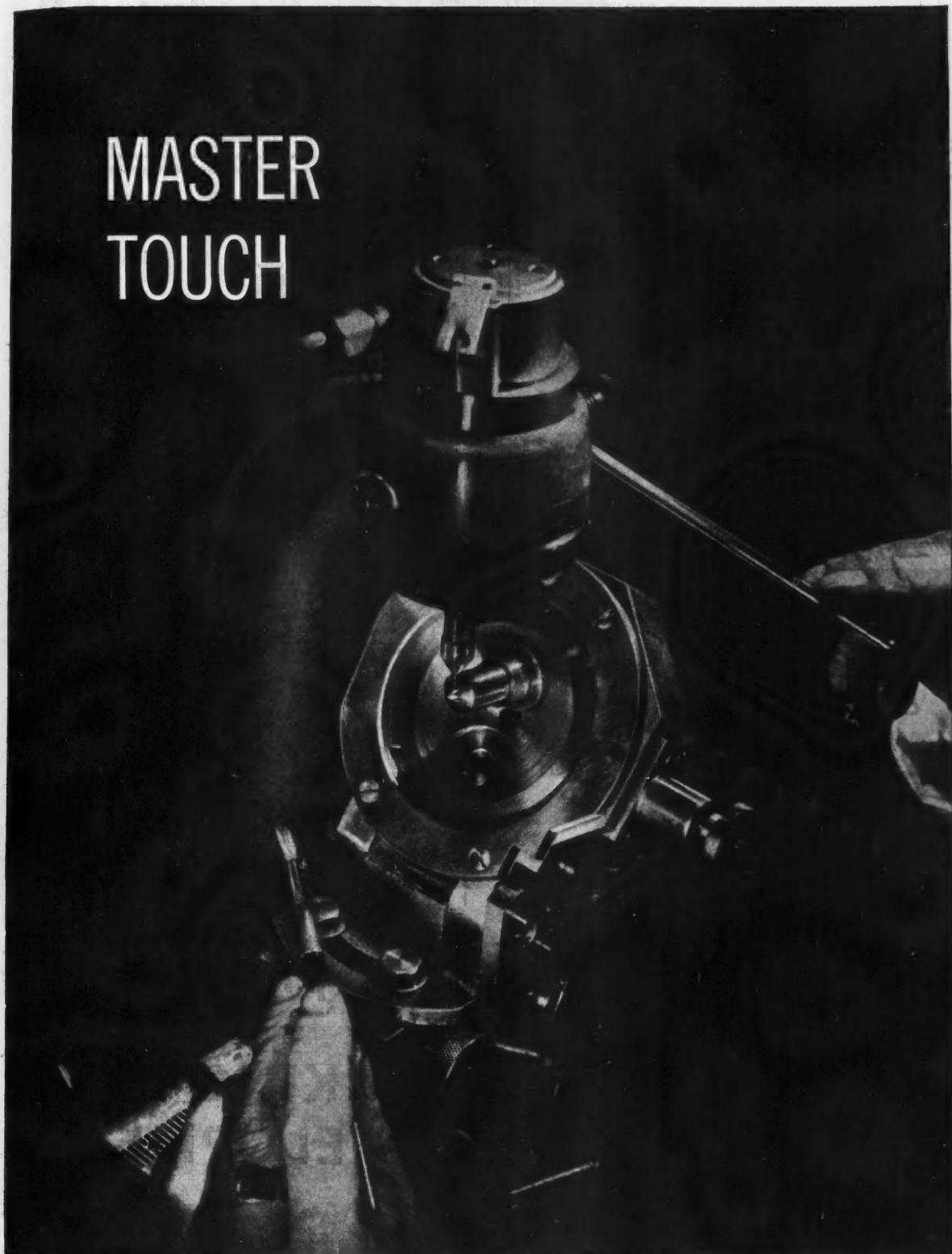
RUSTON-BUCYRUS LIMITED, EXCAVATOR SPECIALISTS, LINCOLN

In the manufacture of C.A.V. fuel injection equipment, quantity production methods have to be combined with fine limit precision work demanding a high degree of skill and scrupulous care. The delicate operation of drilling the spray holes 0.008 in. diameter in the tips of injector nozzles calls for the touch of a master craftsman.



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WILMSLOW
PLANT HIRE COMPANY LTD.
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SPLIT-HEADS

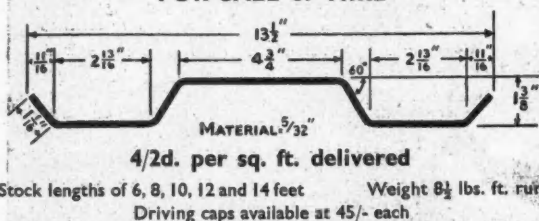
This adjustable fixed leg Split-Head, with its simplicity of design, sturdy construction and low cost, has a strong appeal to the price conscious buyer. Fitted with locking bolt, to prevent wobble when in an extended position, and to ensure rigidity.

Size	Height closed	Height open
1	1' 9"	2' 9"
2	2' 9"	4' 6"
3	4' 3"	6' 3"

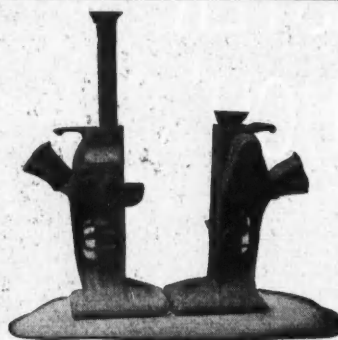
Full details from the actual Manufacturers:-
AUDAX, CENTRAL AVENUE, WEST MOLESEY, SURREY Phone Molesey 6071 (8 lines)



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Neagron (CONSTRUCTION) Ltd.
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 JACKS**
 HEAD and TOE
 LIFT
 COMPLETE WITH
 HANDLES
**BRAND
 NEW**
£12 each

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HAVE YOU A BORING JOB....?

Then ring WALTHAM CROSS 26211/6 to hire

CHESHIRE HIGHWAY EARTH BORING MACHINES

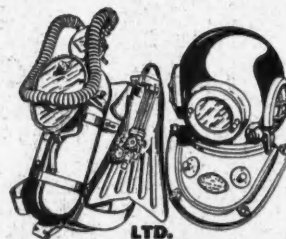
fitted 9", 12", 14", 16", 24" Augers
 Maximum depth 20'

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ACWORTH (PLANT) LTD.

DIVING SPECIALISTS

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 Surveys.
 Underwater
 Cutting,
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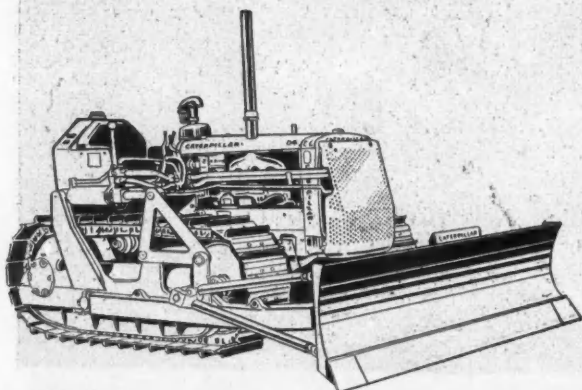
**DIVERS,
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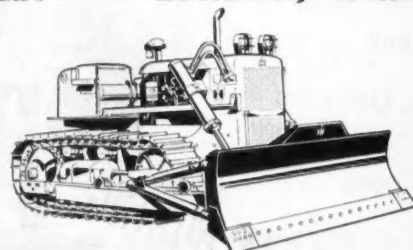
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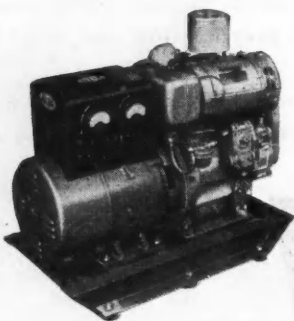
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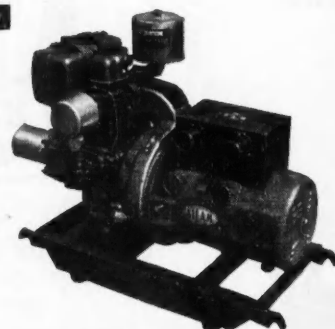
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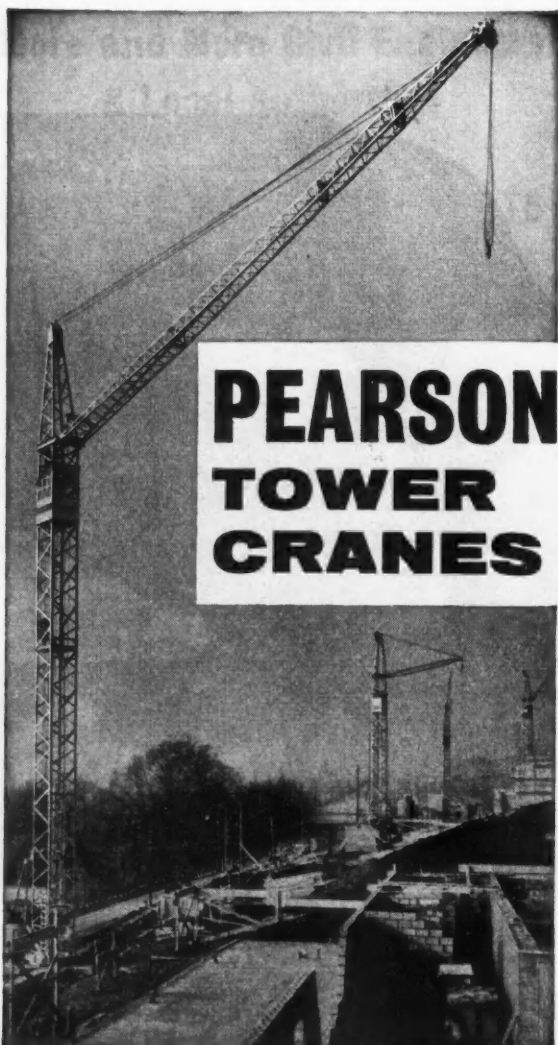
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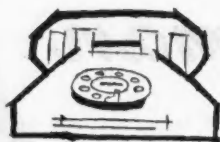
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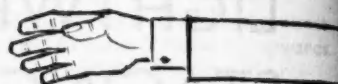
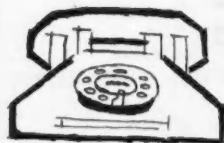
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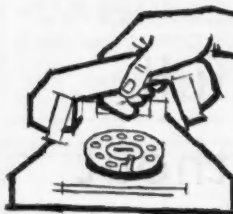
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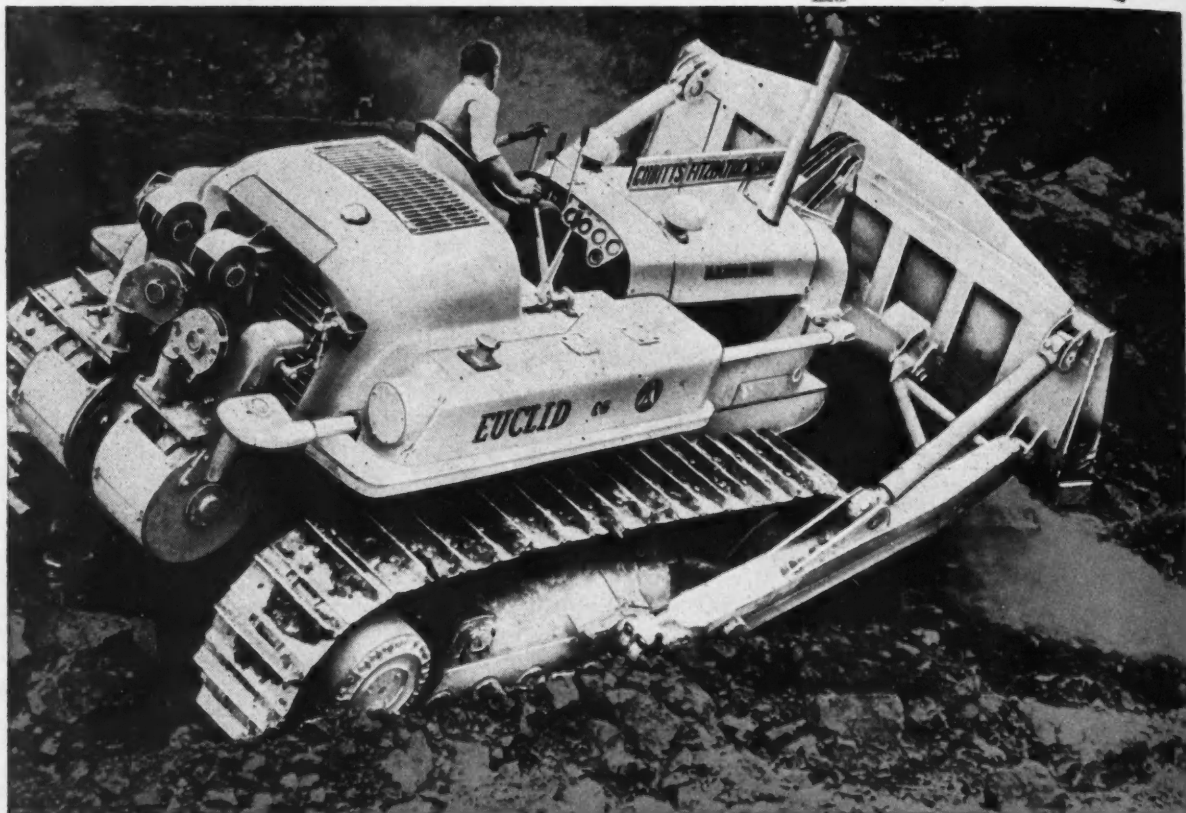
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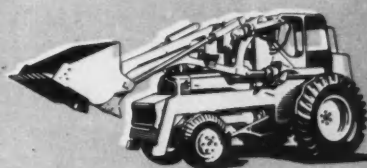
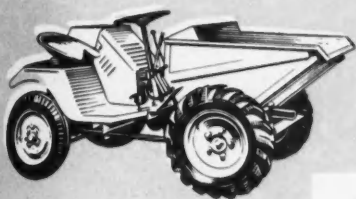
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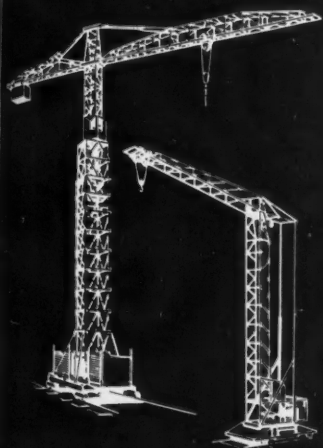
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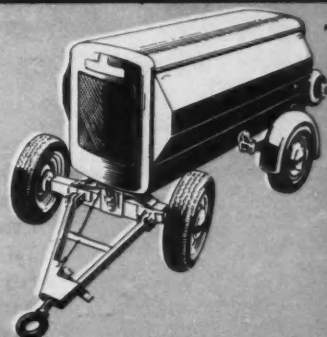
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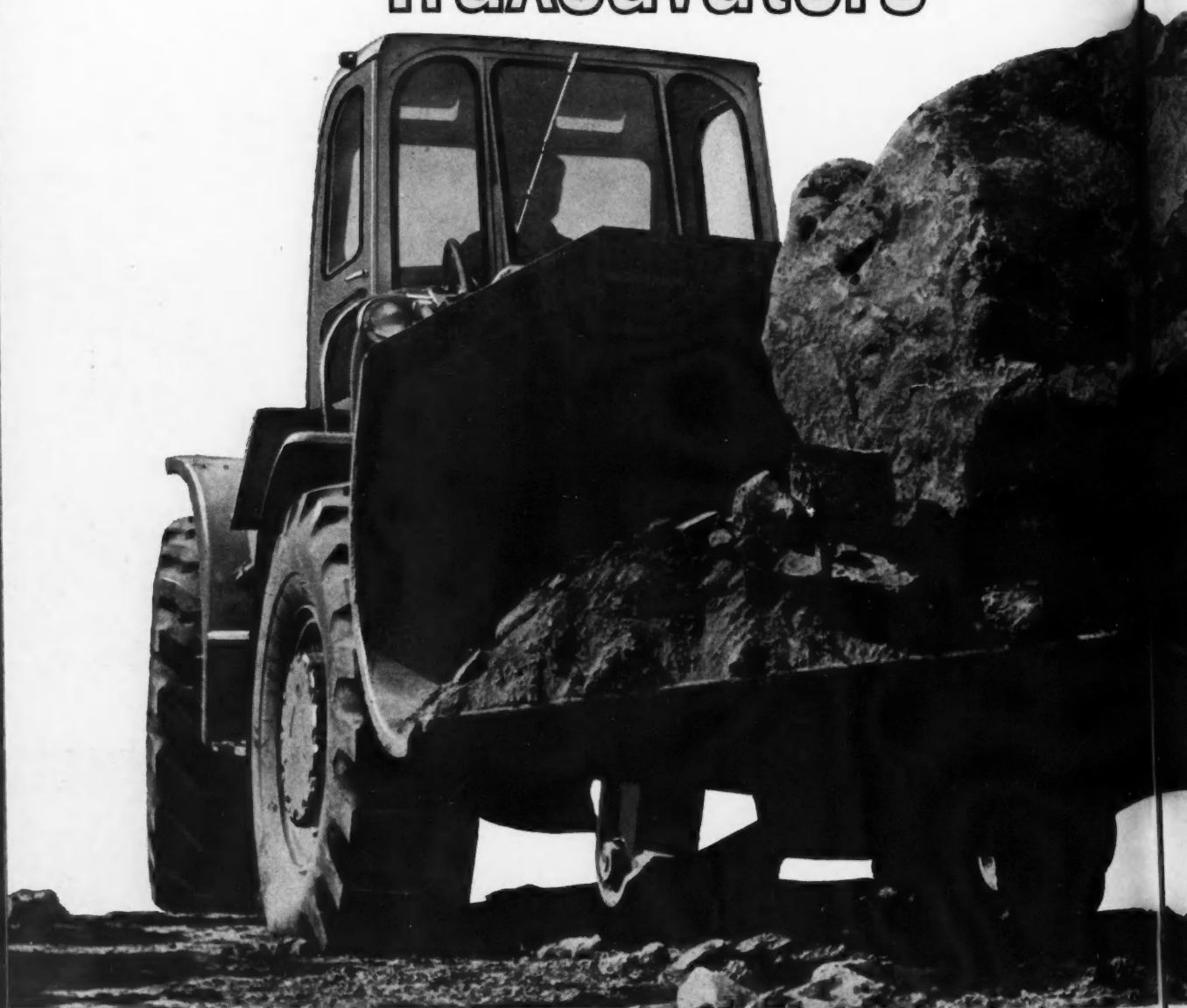
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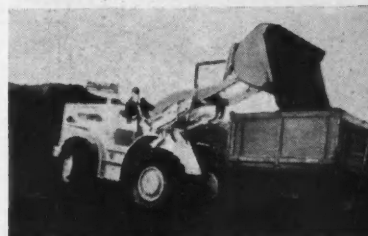
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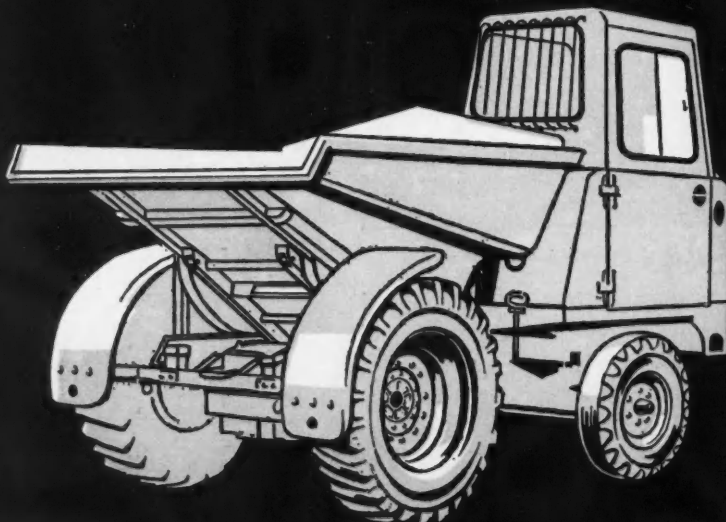
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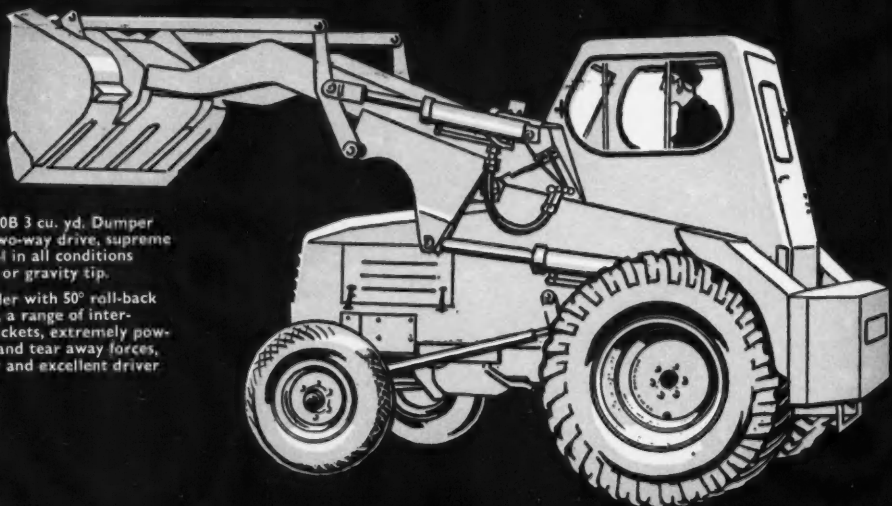
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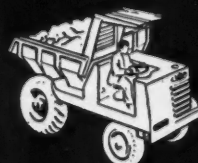
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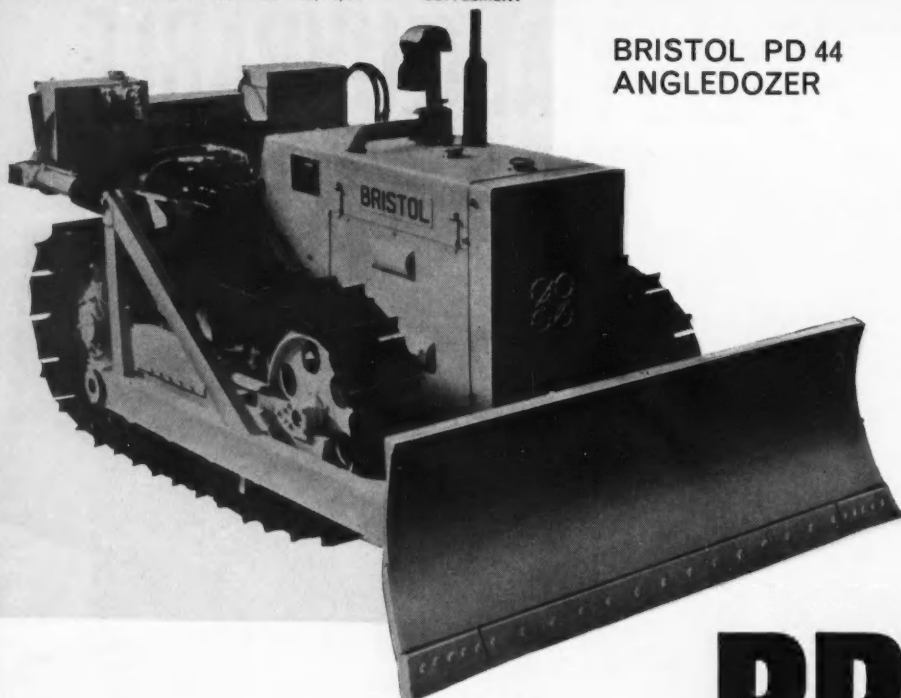
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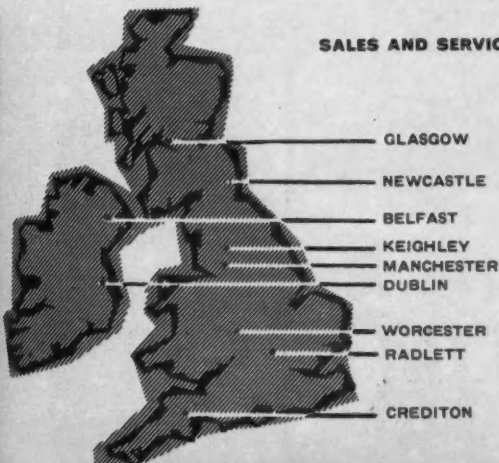


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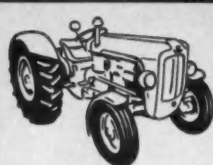
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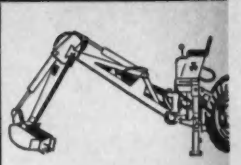
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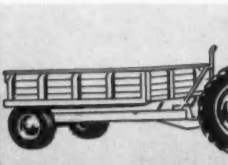
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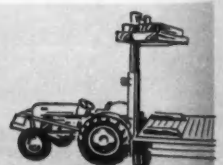
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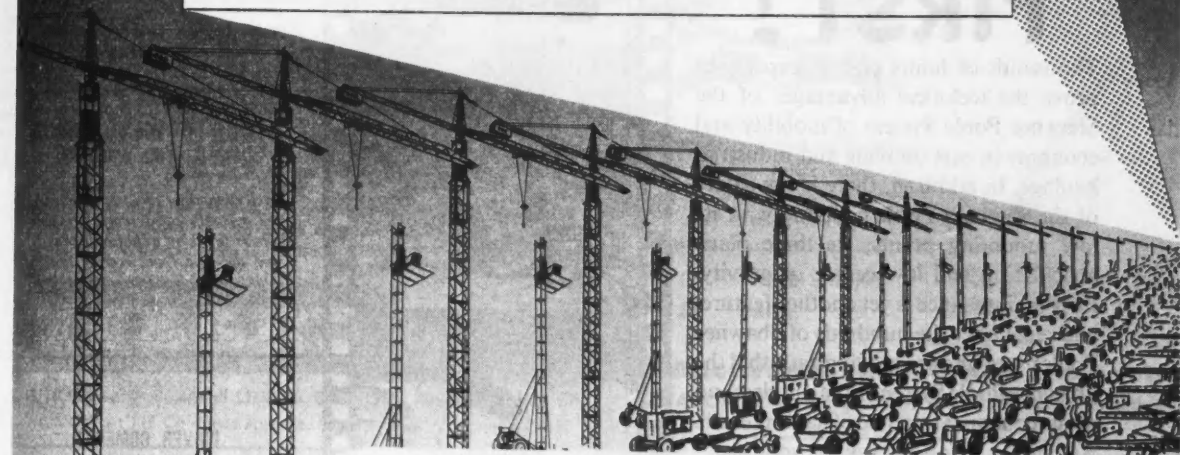


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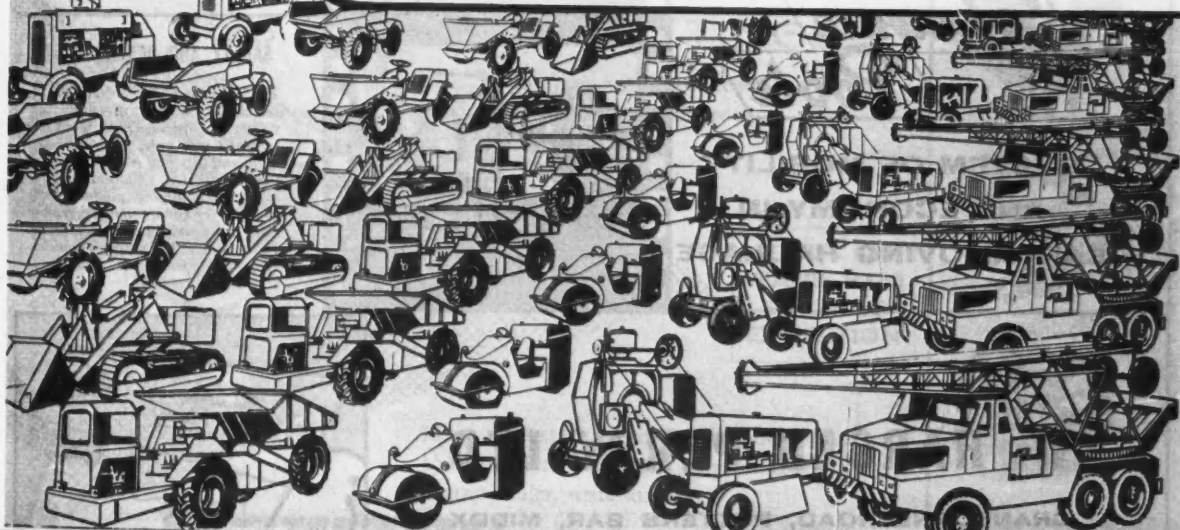


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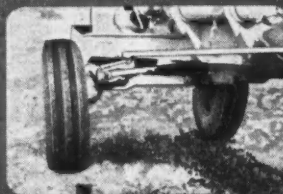
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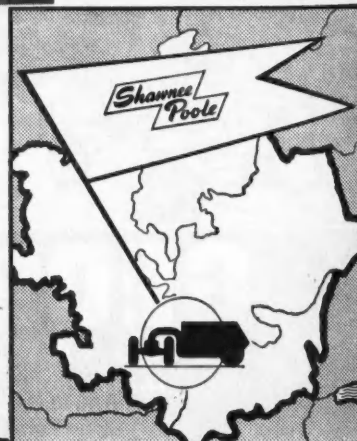
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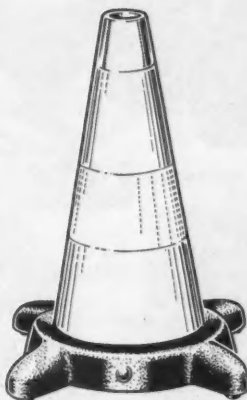
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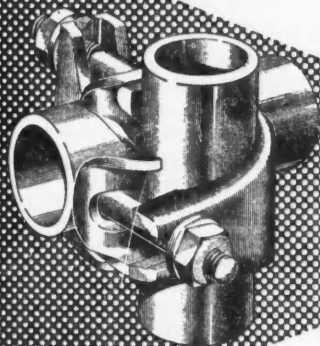
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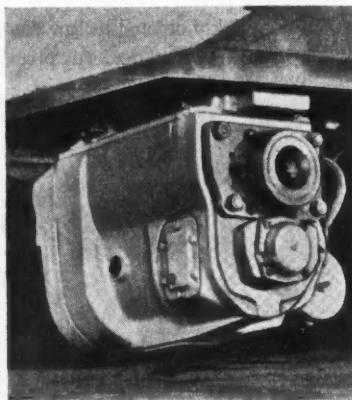


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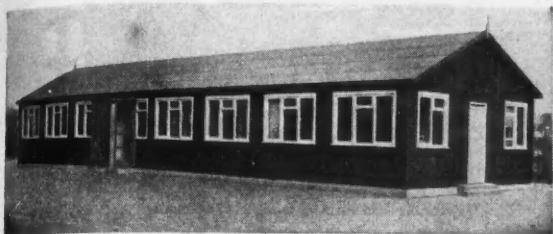
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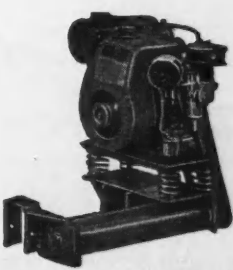
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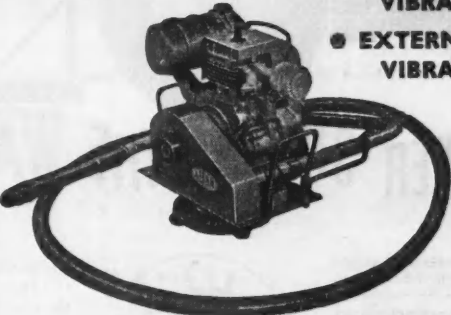
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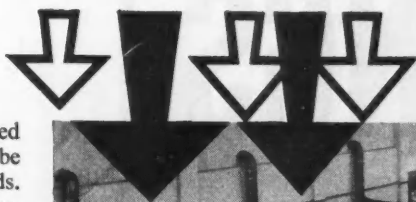
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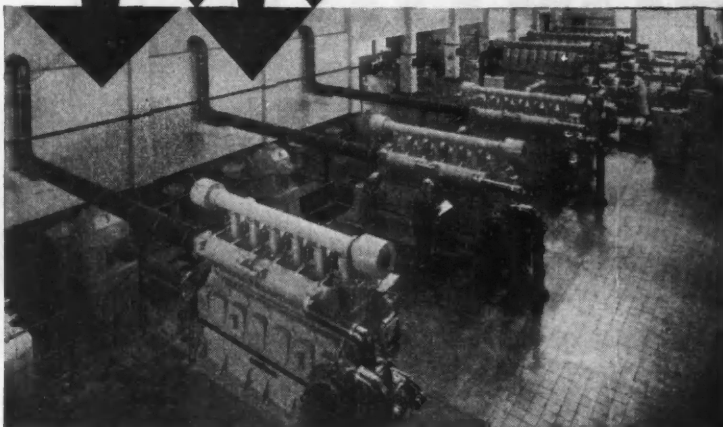
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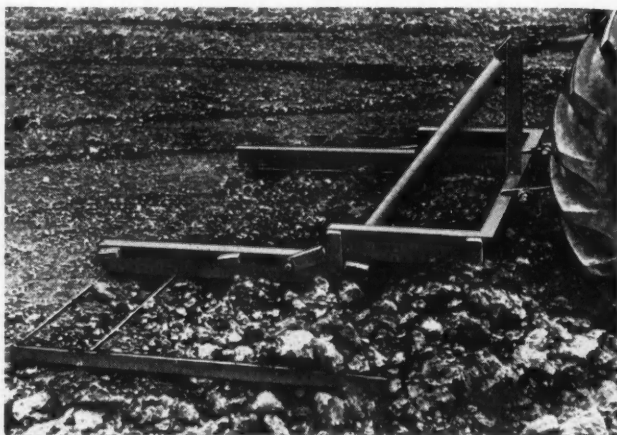
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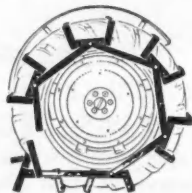
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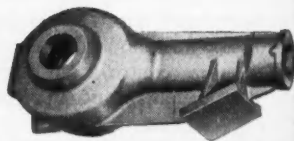
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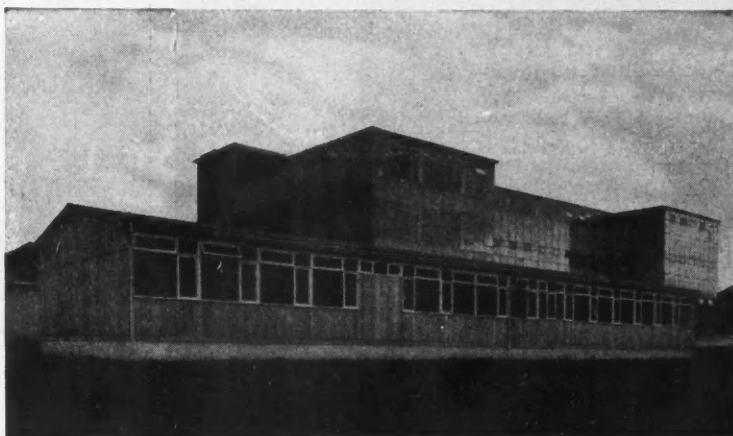
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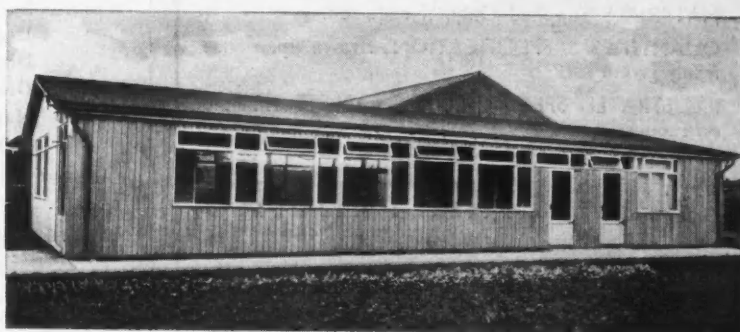
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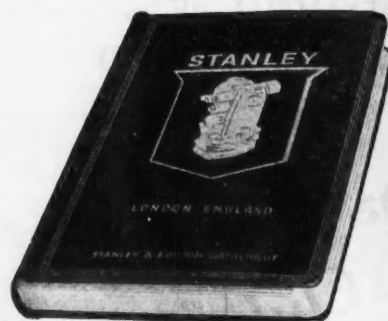
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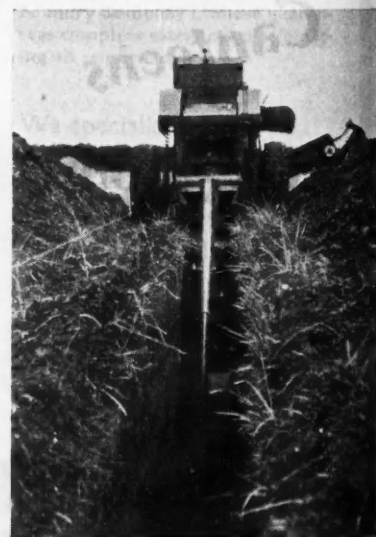
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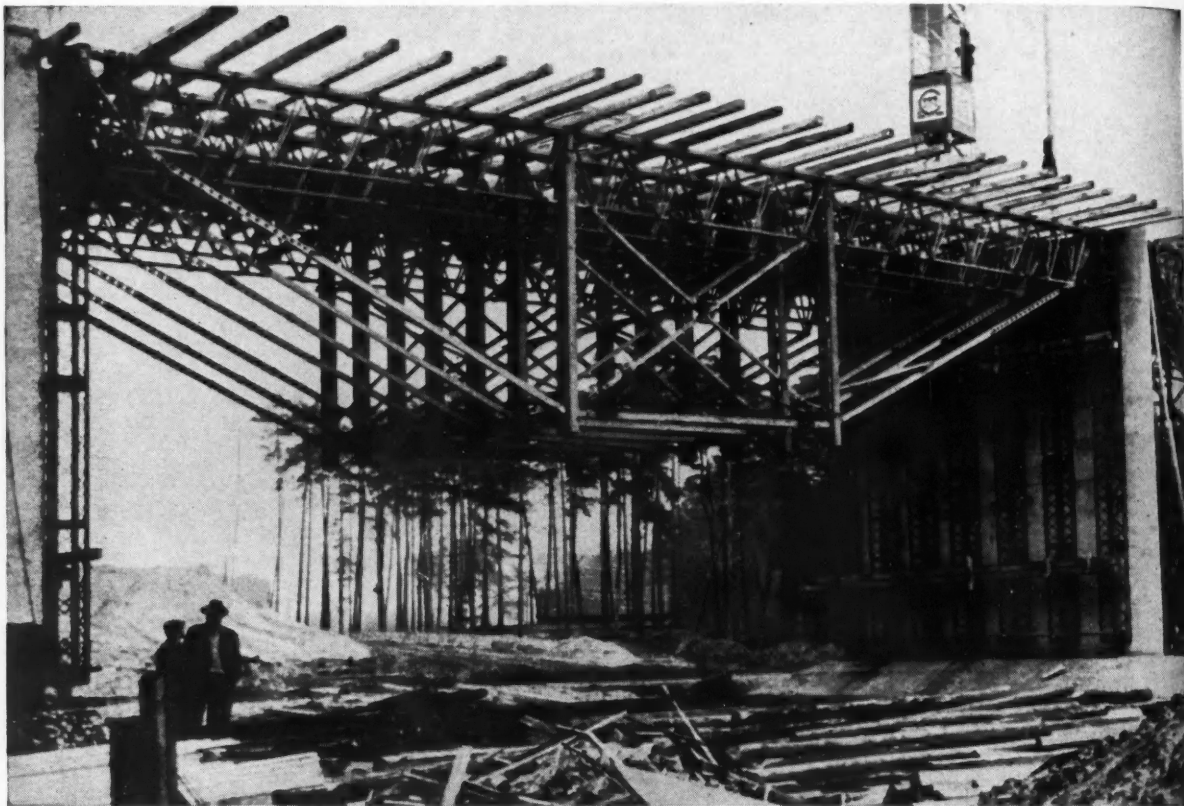


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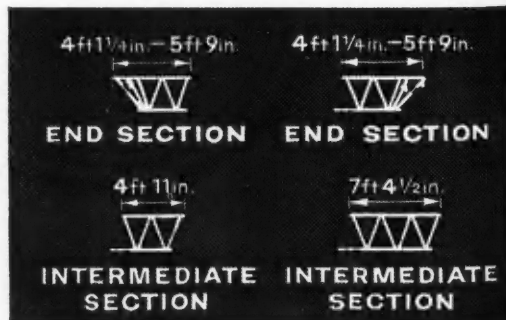
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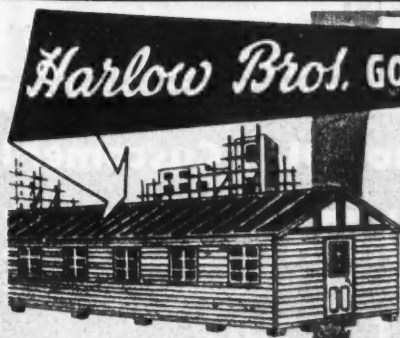
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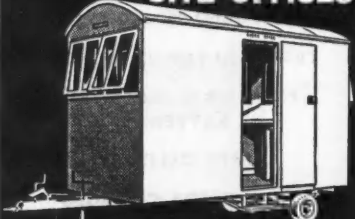
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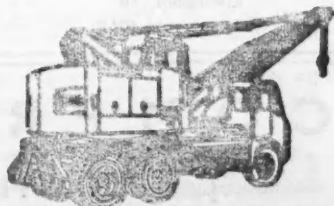
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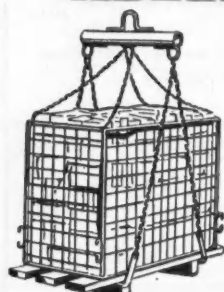
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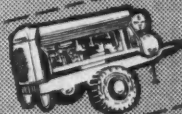
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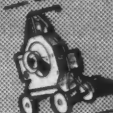
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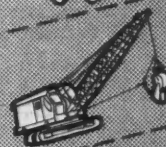
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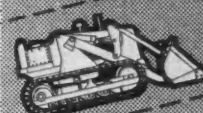
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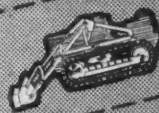
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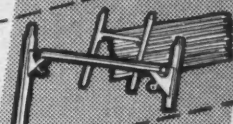
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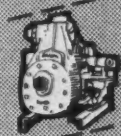
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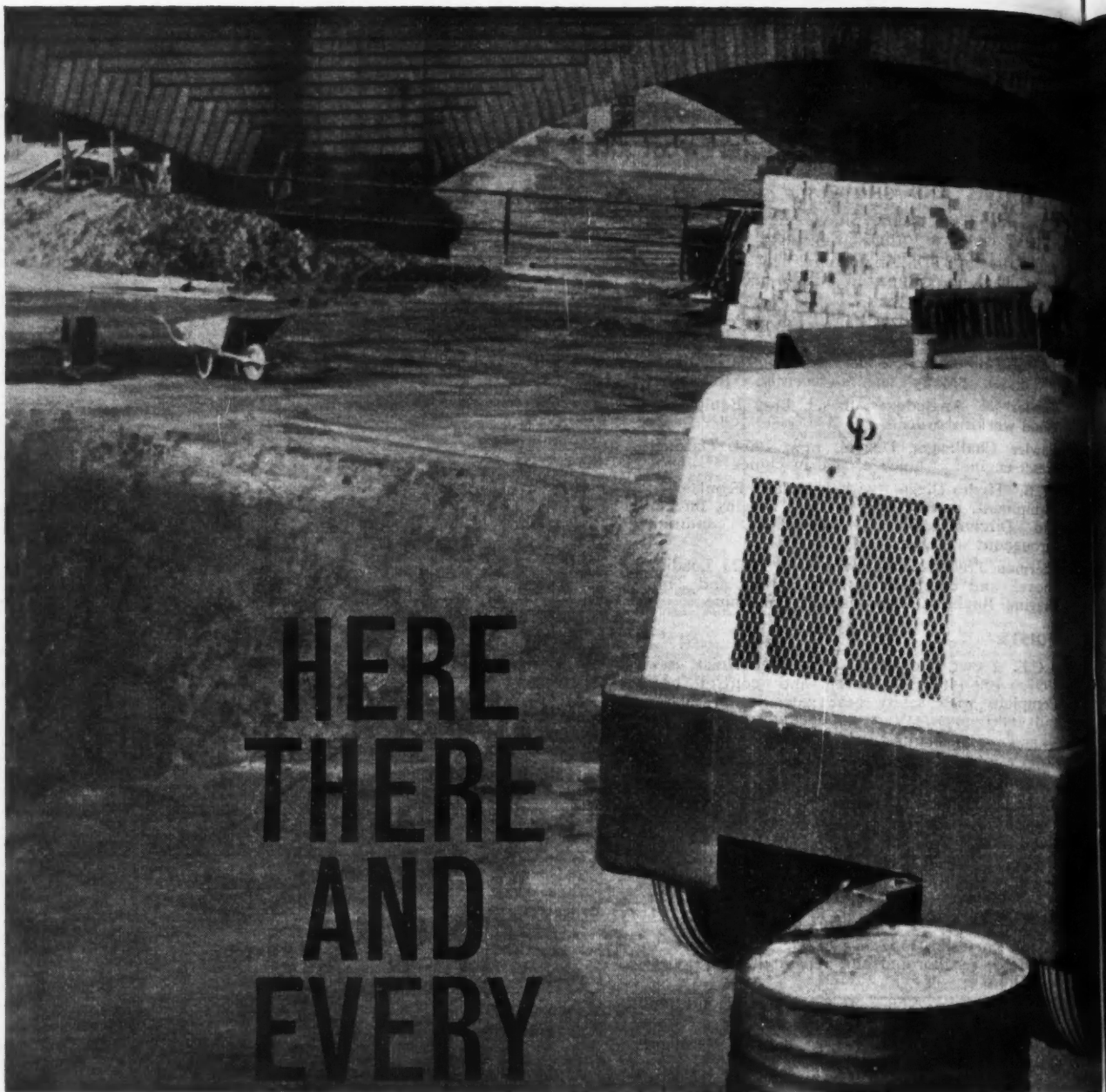


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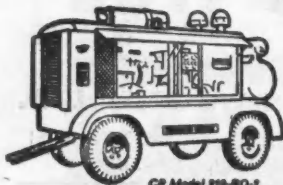
HERE THERE AND EVERY WHERE*



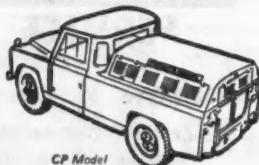
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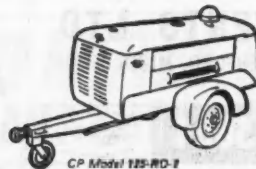
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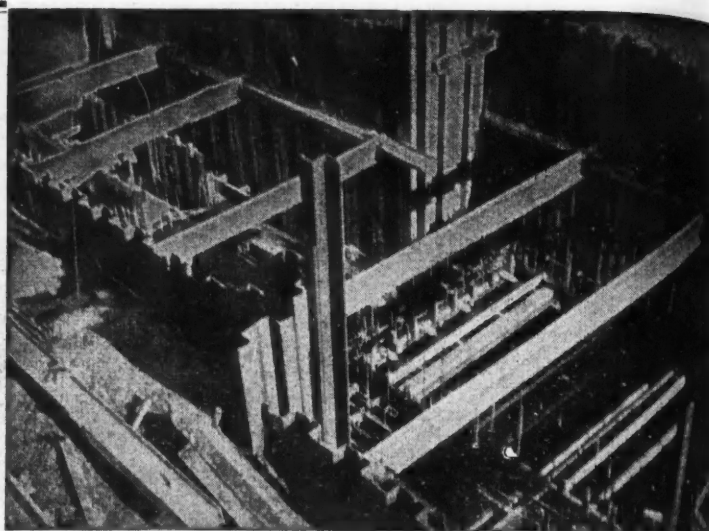
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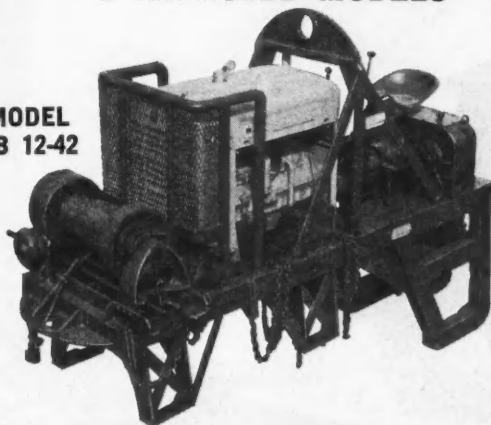
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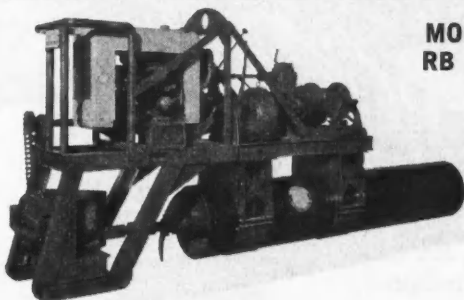
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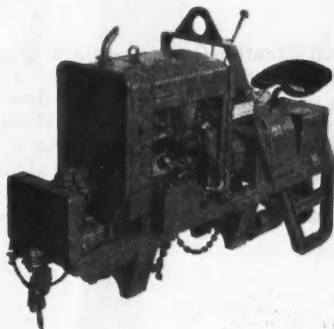
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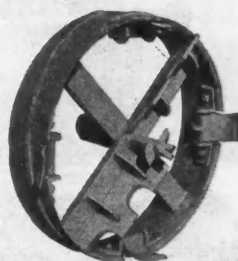


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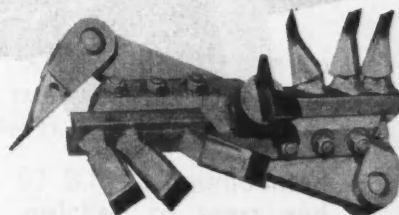
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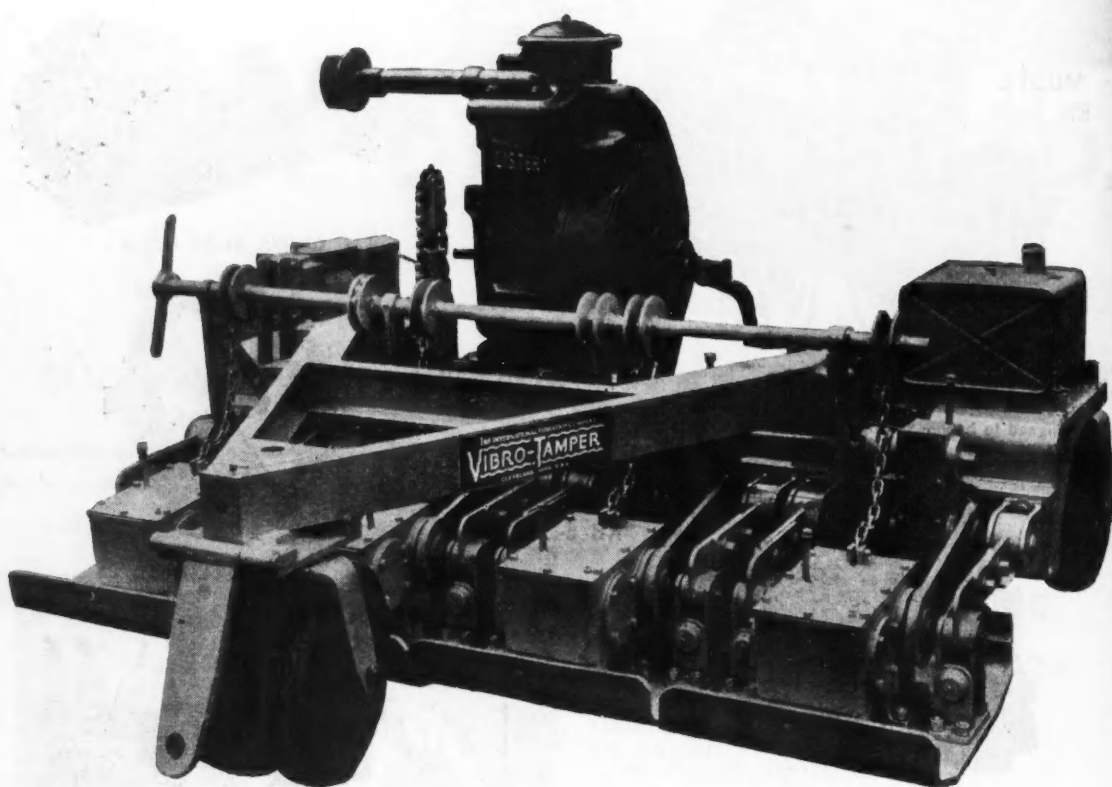
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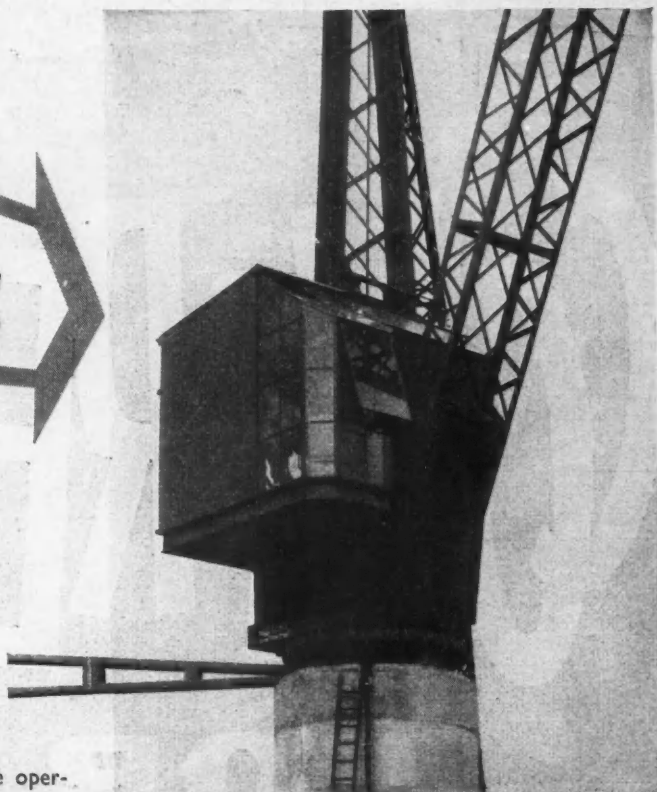
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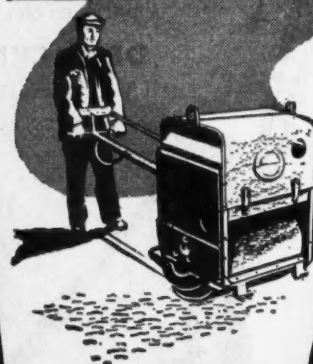
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ILLUSTRATIONS

1. New Headquarters and Midlands Branch at Cannock.
2. View of workshops at newly opened Cardiff Branch.
3. Cannock Workshops: the largest of their kind in the U.K.
4. Workshops at Exeter Branch.



This is BOWMAKER service

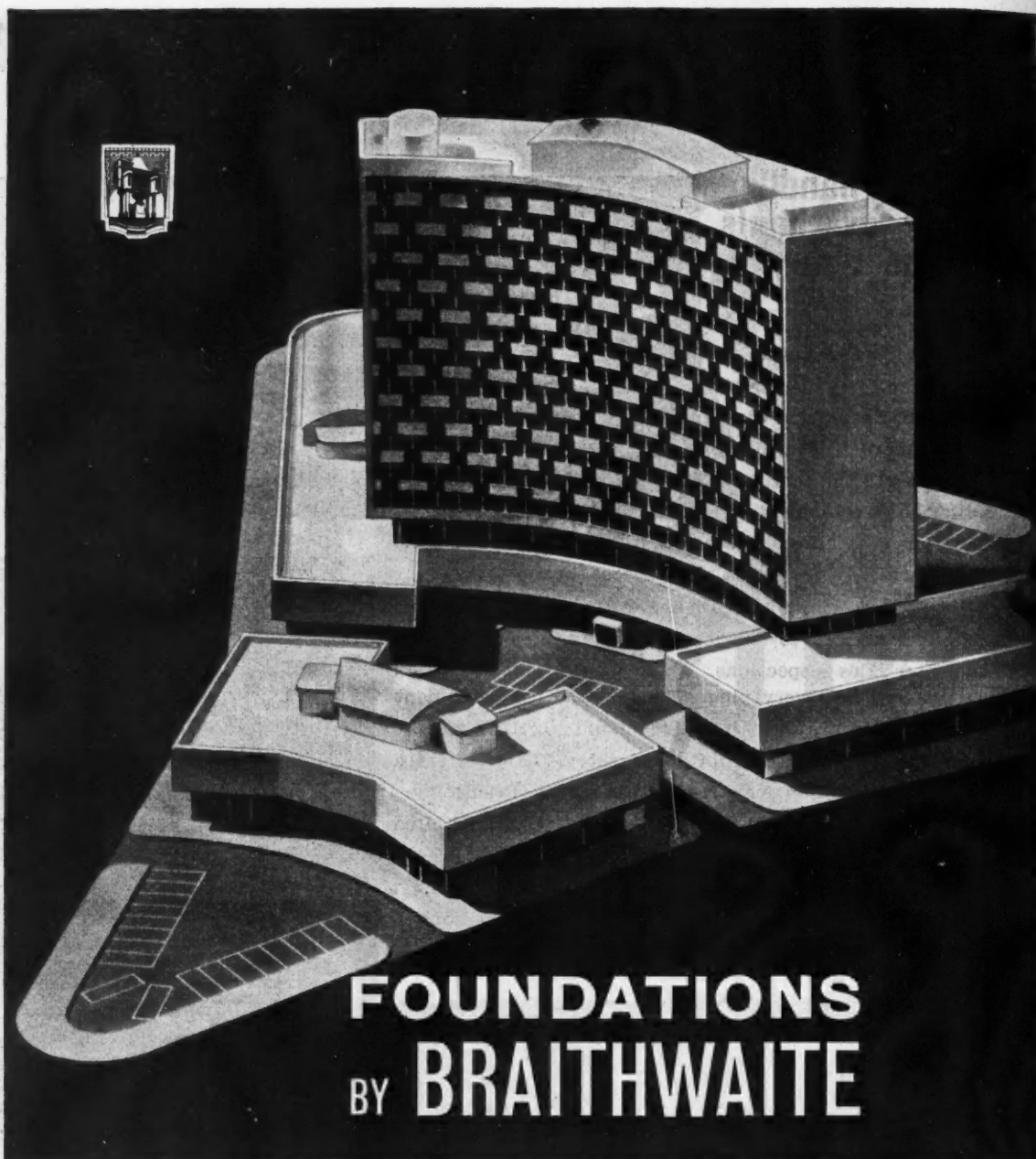
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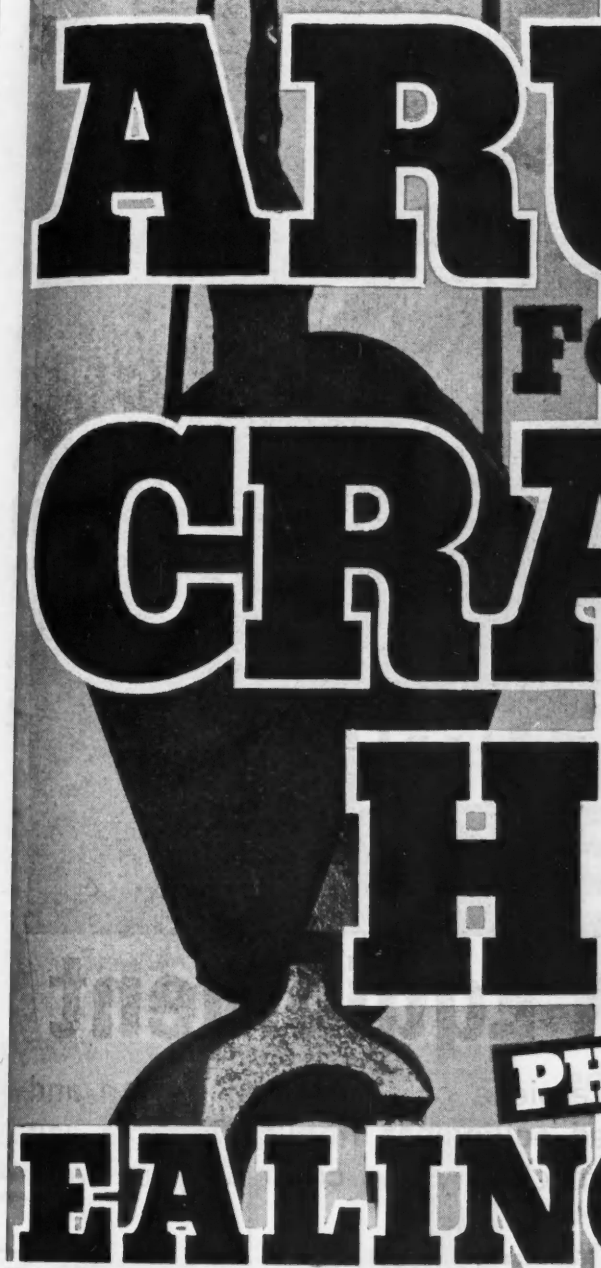
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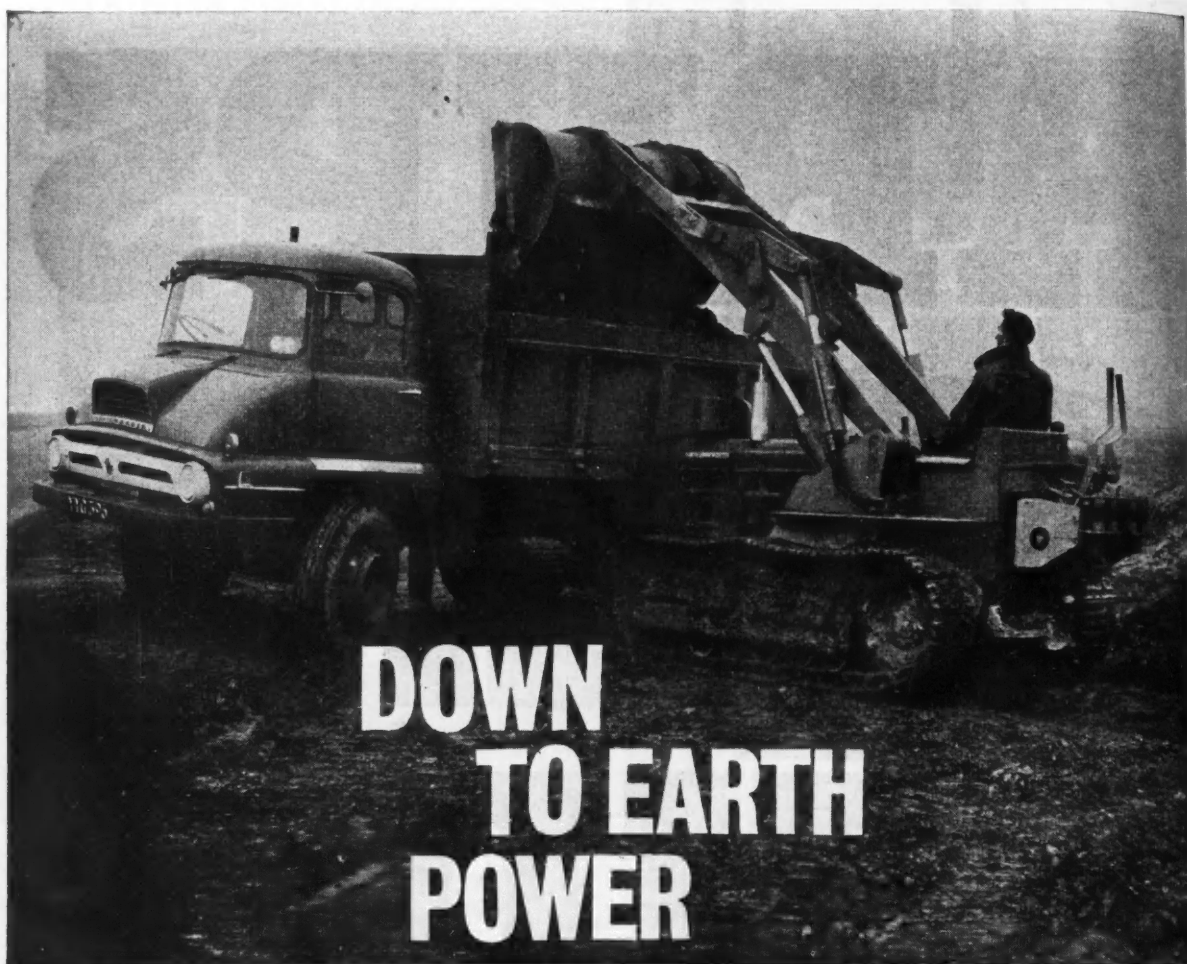
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The 50TD Shovel with 50 b.h.p. six cylinder diesel engine has a bucket capacity of one cubic yard. The loading cycle is 5.6 seconds and the maximum lift 10 ft. 6 in.

950 Industrial Tractor with Shawnee Back-Acter

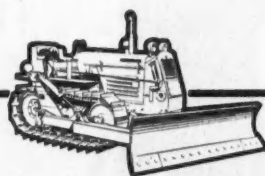
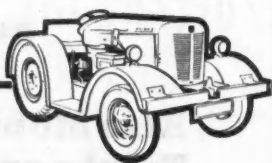
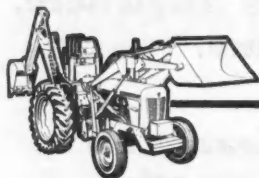
The 950 is a wheeled tractor with 42.5 b.h.p. four cylinder diesel engine. The Back-Acter has a maximum loading height of 12 ft. 9 in., a reach of 14 ft. 4½ in., a digging depth of 11 ft. 9 in., and a 180 degree slewing angle.

Taskmaster

The Taskmaster is a wheeled tractor with 42.5 b.h.p. four cylinder diesel engine. Versions are available with torque converter for smooth take-off under any load and with twin rear wheels for maximum adhesion. All models comply fully with the Road Traffic Act and are ideal for all general haulage purposes.

40TD Angledozer

The 40TD Angledozer has a 42.5 b.h.p. four cylinder diesel engine and is equipped with hydraulically operated angledozers (8 ft. blade). A 50TD Angledozer (50 b.h.p. six cylinder diesel) is also available.



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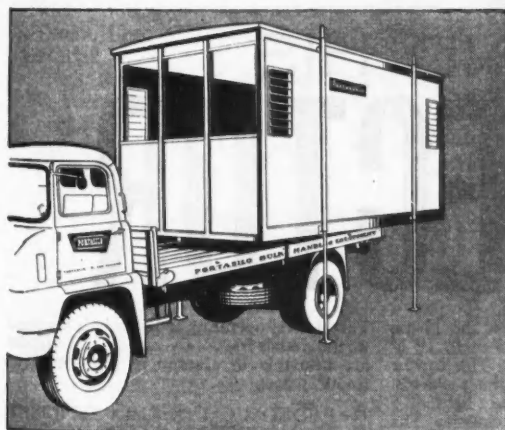
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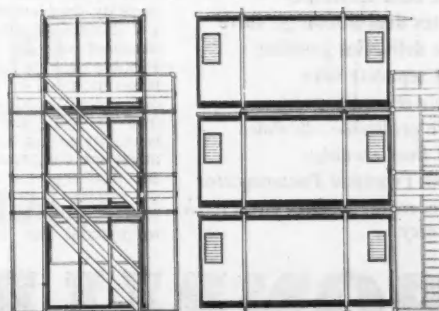
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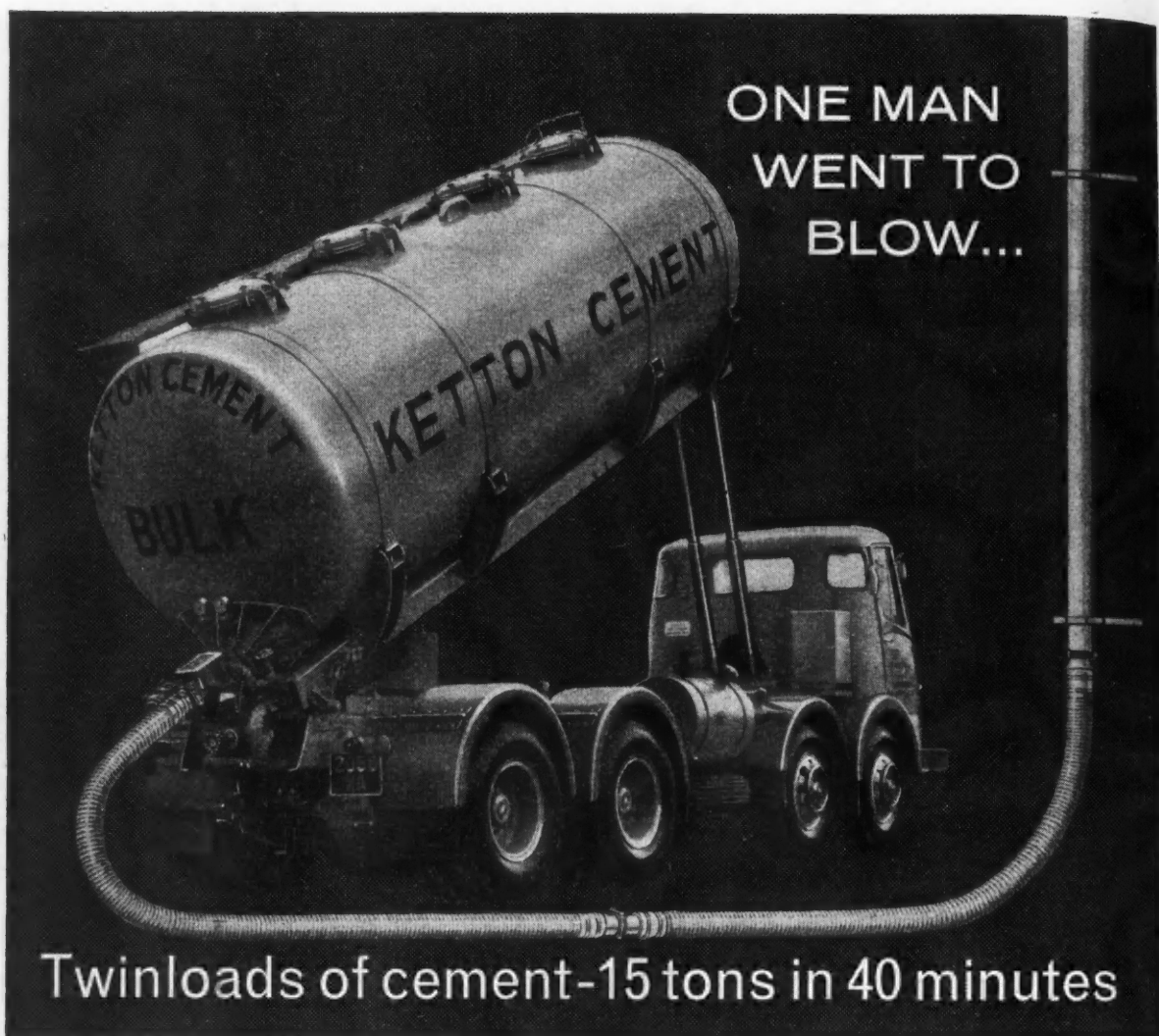
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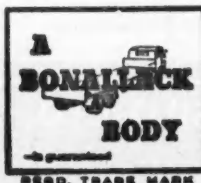
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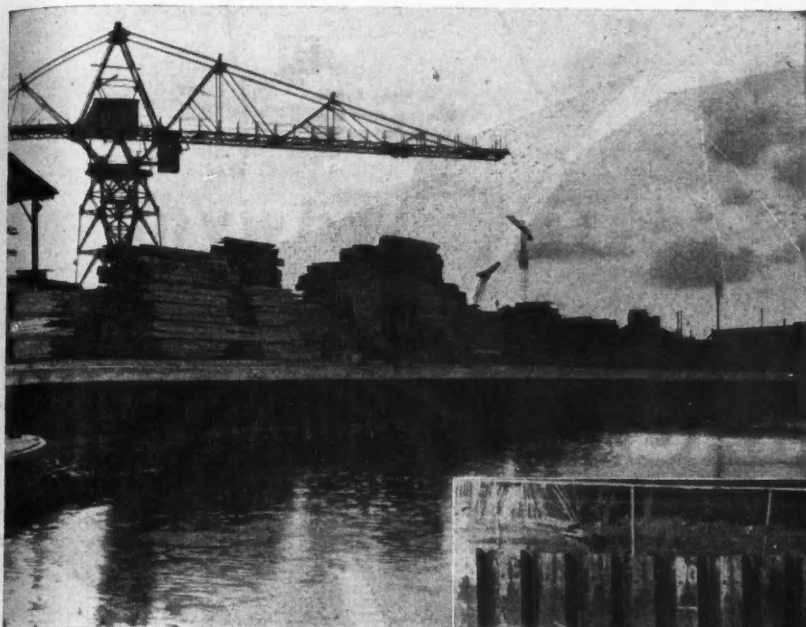
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Left:—Frodingham steel sheet piling, Section No. 1A, was used for the construction of this wharf at Hackney for W. Mallinson & Sons Ltd.
Contractors: Samuel Williams & Sons Ltd.

Right:—96 ft. diameter cofferdam for the Black Rock pumping station, Weston-super-Mare, constructed of 75 ft. lengths of Frodingham piling, Section No. 4, in medium tensile steel.
Borough Engineer: J. R. Freer-Hewish, Esq.,
A.M.I.C.E., M.I.Mun.E.
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Leeds 12
Telephone: Leeds 639081

D

Search (Liverpool) Ltd.,
Hammond Road,
Kirkby Industrial Estate
Liverpool
Telephone:
Simonswood 3361

I

Municipal & General
Supply Co. Ltd.,
Clan Park,
Tolka Bridge,
Drumcondra, Dublin
Telephone:
Dublin 373614/5/6

C

Nadleigh Senbourne Ltd.,
10 Wilsons Road, Knowle, Solihull
Telephone: Knowle 4111

A

A. Long & Co. Ltd.,
45 Parliament Street
London, S.W.1
Telephone: Whitehall 5064/5

B

Joseph Pugsley & Sons Ltd.,
Bridge House, Lawrence Hill,
Bristol 5
Telephone: Bristol 56037



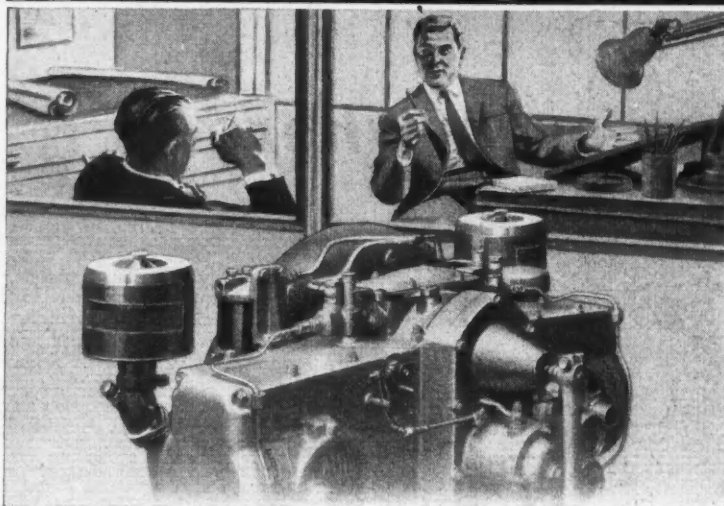
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ENFIELD!*

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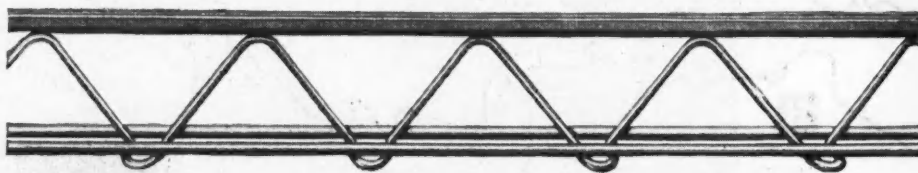
REDDITCH, WORCESTERSHIRE

Tel: Redditch 4222 (9 lines)

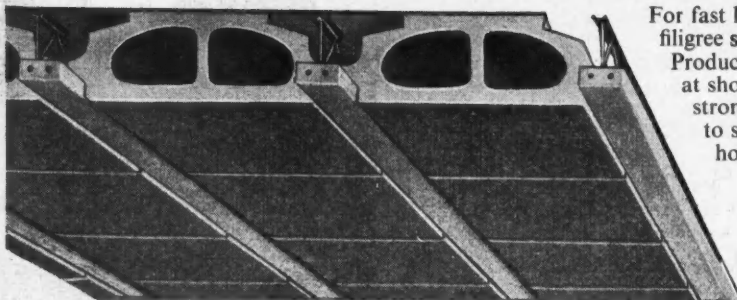
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CONTRACTS

COUNTY BOROUGH OF WIGAN.

UNIFORM CLOTHING, ETC.

TENDERS are invited for the SUPPLY AND DELIVERY of UNIFORMS, etc., for the Ambulance, Cleansing, Fire, Health, Police, School Meals, Transport and other Departments.

Particulars and Specifications may be obtained on application to me, giving types of clothing, uniform, etc., concerned.

Separate Tenders, appropriately endorsed as to Departments, should be delivered to me not later than THURSDAY, the 16th November, 1961.

Samples should not be enclosed with Tenders, but should be sent under separate cover.

The Corporation do not bind themselves to accept the lowest or any Tender.

ALLAN ROYLE,
Town Clerk.

Municipal Buildings,
Library Street,
Wigan.

12th October, 1961.

BOROUGH OF LOWESTOFT.

MAIN DRAINAGE—CONTRACT NO. 1.

TENDERS are invited for the SINKING of about 45 BOREHOLES and 15 TRIAL EXCAVATIONS along the lines of Proposed New Sewers and at the Sites of Proposed New Pumping Stations.

Tender documents may be obtained from the Council's Consulting Engineers, MESSRS. J. D. AND D. M. WATSON, M.I.C.E., 67 Tufston Street, Westminster, S.W.1, on and after Monday, 16th October, 1961, on payment of a deposit of Five Guineas, refundable only to contractors who submit bona-fide Tenders and return all documents and Drawings. Deposit cheques should be made payable to Messrs. J. D. and D. M. Watson.

The Council do not bind themselves to accept the lowest or any Tender.

Tenders must be returned in envelopes which do not bear any name or mark indicating the sender, endorsed "Tender for Contract No. 1," and delivered at the Office of the undersigned by Noon on WEDNESDAY, 1st November, 1961.

F. B. NUNNEY,
Town Clerk.

Town Hall,
Lowestoft,
Suffolk.

BARNACK RURAL DISTRICT COUNCIL.

TENDERS.

WITTERING/PILSGATE WATER SUPPLY—PART 1.

TENDERS are invited from contractors experienced in similar work for the LAYING of approx. 3,800 yd. of twin 6 in. dia. ASBESTOS-CEMENT WATER MAIN with Screw Gland Joints, including a Booster Station, Pressure Vessel, and all Valves, Hydrants, and Contingent Fittings.

Form of Tender and relative documents can be obtained on payment of a deposit of Two Guineas, from the Council's Consulting Engineers, MESSRS. STIRLING, MAYNARD AND PARTNERS, 8 Station Chambers, Peterborough.

The deposit of Five Guineas should be made payable to the Barnack R.D.C., and deposits will be returned on receipt of a bona-fide Tender.

Tenders, in a plain envelope endorsed "Wittering/Pilsgate Water Supply," to be delivered to the undersigned not later than First Post on FRIDAY, 3rd November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

G. P. WARTERS,
Clerk to the Council.

Council Offices,
Broad Street,
Stamford, Lincs.

SOUTH CAMBRIDGESHIRE RURAL DISTRICT COUNCIL.

EASTERN AREA WATER SUPPLY.

RIVEY HILL RESERVOIR AND BOOSTER STATION—CONTRACT NO. 5.

TENDERS are invited for the CONSTRUCTION, TESTING AND MAINTENANCE of a BOOSTER STATION, a 300,000-gallon POST-TENSIONED CIRCULAR CONCRETE RESERVOIR, and all other works incidental thereto.

A copy of the Contract documents may be obtained from the Council's Consulting Engineers, MESSRS. LEMON AND BLIZARD, 59 Tufston Street, Westminster, S.W.1, upon payment of a deposit cheque of Five Guineas made payable to the Council, which will be returned on receipt of a bona-fide Tender and the return of all documents.

The Form of Tender and a priced Bill of Quantities must be delivered, in a sealed envelope endorsed "Tender for Rivey Hill Reservoir and Booster Station," to the undersigned not later than TUESDAY, 7th November, 1961.

The Plans and Drawings may be seen during normal working hours at the Offices of the Consulting Engineers or the Council.

The Council do not bind themselves to accept the lowest or any Tender.

F. H. M. SARGENT,
Clerk of the Council.

County Hall,
Hobson Street,
Cambridge.

MANCHESTER REGIONAL HOSPITAL BOARD.

The Board are preparing to CARRY OUT MAJOR DEVELOPMENTS, as FOLLOWS:

- CONTRACT NO. 1—Blackburn Royal Infirmary:
- The Erection of the following New Buildings in Reinforced Concrete Frame Construction with Brick Panels:
 - A 5-storey Ward Block with a floor area of approx. 53,000 sq. ft.
 - A 2-storey Pathology Laboratory and Workshop Block with an area of approx. 20,000 sq. ft.
 - A 2-storey Operating Theatre Unit having an area of approx. 18,500 sq. ft.
 - The Structural Adaptation of Existing Buildings to provide a Central Sterile Supply Department.

CONTRACT NO. 2—Hose Hospital, Salford: The Erection of a Maternity Unit consisting of a 4-storey Reinforced Concrete Framed Building with a total floor area of approx. 69,000 sq. ft.

The cost of these developments will be in the region of £650,000 and £400,000, respectively, and the Board will be inviting FIRM-PRICE TENDERS for the work early in 1962.

Contractors wishing to be invited to tender are requested to communicate with the REGIONAL ARCHITECT, Manchester Regional Hospital Board, Chesham Road, Manchester 8, not later than MONDAY, the 30th October, 1961.

CONTRACTS

BOROUGH OF SLOUGH.

SEWAGE DISPOSAL WORKS.

Civil Engineering contracts, experienced in driving steel sheet piling, deep excavation and construction of water-retaining reinforced concrete tanks, and desirous of being considered for inclusion in a list of contractors to be invited shortly to submit TENDERS for the CONSTRUCTION of TWO HUMUS TANKS of about 330,000 gallons capacity each, are requested to submit their names, together with two engineering references, to the BOROUGH ENGINEER, Town Hall, Slough, Bucks., not later than 20th OCTOBER, 1961.

The Council does not bind itself to include the name of any contractor in the list of those to be invited to submit Tenders.

BOROUGH OF BRIDGWATER.

COLLEY LANE INDUSTRIAL ESTATE.

TENDERS are invited for the COMPLETION of COLLEY LANE INDUSTRIAL SITE PHASE 1. The work comprising the completion of reinforced carriage-way, approx. 850 sq. yd., the construction of 1.450 sq. yd. of tarmac car-parkways and all incidental work.

Tender documents may be obtained from the Borough Engineer, Town Hall, Bridgwater, on receipt of £2 2s. deposit. Tenders to be returned by 10 a.m. FRIDAY, 27th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

J. L. TURNER,
Town Clerk.

CITY OF ROCHESTER.

EARL ESTATE—STAGE 2A.

67 HOUSES AND 12 FLATS.

TENDERS are invited for the ERECTION of the ABOVE DWELLINGS.

Tender documents may be obtained from JAMES A. PEEL, A.M.I.C.E., M.I.Mun.E., City Surveyor, 66 Maidstone Road, Rochester, upon payment of £3 3s. deposit which will be refunded upon receipt of a bona-fide Tender. A Fixed-price Tender, together with an alternative Tender incorporating the Fluctuations Clause of the R.I.B.A. Form of Contract will be required.

Documents will be issued on or about 7th November, 1961, and are to be returned before 12 Noon on TUESDAY, 5th December, 1961.

The Corporation do not bind themselves to accept the lowest or any Tender.

PHILIP H. BARTLETT,
Town Clerk.

The Guildhall,
Rochester,
October, 1961.

ASHTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL.

TOWN HALL ACCOMMODATION.

TENDERS are invited for the CONSTRUCTION of OFFICE ACCOMMODATION for the Public Health Department. The offices are first floor only, being built onto an existing single-storey building, and cover approximately 1,100 sq. ft.

Bills of Quantity, tender documents and drawings may be obtained from and inspected at the offices of MESSRS. N. H. CHEETHAM AND PARTNERS, 7a Library Street, Wigan.

Tenders, in plain sealed envelopes endorsed "Town Hall Accommodation," must reach the undersigned not later than 10 a.m. on the 10th NOVEMBER, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

FRANK DEAN,
Clerk of the Council.

Town Hall,
Ashton-in-Makerfield.

WORTLEY RURAL DISTRICT COUNCIL.

PILLEY SEWAGE AND SEWAGE DISPOSAL.

FIXED-PRICE TENDERS are invited from experienced contractors for the CONSTRUCTION of 580 yd. of 12 in. dia. OUTFALL SEWER, Manholes, and a Sewage Disposal Works consisting of Grit Channels, Settlement, Humus, and Storm Water Tanks and two Circular Filter Beds, together with Sludge Drying Beds, Site Pumping Station, and other appurtenant works.

Plans and Specifications may be seen at the Offices of the Council's Consulting Engineers, MESSRS. ELLIOTT AND BROWN, Chartered Civil Engineers, Stanley House, Pelham Road, Nottingham, or at the Office of the Engineer and Surveyor, Council Offices, Gretnade, Sheffield, and copies of the Tender documents may be obtained from either of them on deposit of Five Guineas (by cheque payable to the Wortley R.D.C.), which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, and return of documents loaned to the contractors.

Tenders, in plain sealed envelopes endorsed "Pilley Sewerage and Sewage Disposal," to be delivered to the undersigned not later than 12 Noon, 27th NOVEMBER, 1961.

The lowest or any Tender will not necessarily be accepted.

ADRIAN M. KELLY,
Clerk of the Council.

Council Offices,
Gretnade,
Sheffield.

RUGBY RURAL DISTRICT COUNCIL.

ROAD AND SEWER WORKS.

STRETTON-ON-DUNSMORE HOUSING SITE.

The District Council invite TENDERS for the CONSTRUCTION of ROAD AND SEWER WORKS at the Council's Housing Site at SCHOOL LANE, Stretton-on-Dunsmore.

Plans, Specifications, Bills of Quantities and Form of Tender may be obtained from the Council's Engineer and Surveyor, 16 Warwick Street, Rugby, upon payment of a deposit fee of £3 3s. (made payable to the Rugby Rural District Council), which sum will be repaid on receipt of a bona-fide Tender and the return of all documents.

Tenders should be submitted in a plain sealed envelope endorsed "Tender for Road and Sewer Works—Stretton-on-Dunsmore," so as to reach the undersigned not later than 12 Noon on FRIDAY, 17th November, 1961.

The successful contractor will be required to enter into a Contract and Bond for the due performance and fulfilment of the Contract.

The Council do not bind themselves to accept the lowest or any Tender.

H. A. WILDE,
Clerk of the Council.

Council Offices,
24 Warwick Street,
Rugby.

10th October, 1961.

CONTRACTS

BOROUGH OF ENFIELD.

PRIVATE STREET WORKS CONTRACTS—SIX STREETS.

The COUNCIL invites TENDERS for the MAKING-UP of the FOLLOWING:

- Alma Road, approx. length 285 yd., with 7 in. Road, approx. length 145 yd., with 7 in. thick Reinforced Concrete Carriageway and Footpath of 2 in. Asphalt.
- Macadam on 4 in. thick Concrete; and for the Making-up of
- Winnington Road, approx. length 90 yd., and Stainton Road, approx. length 33 yd., and Painters Lane, approx. length 500 yd., with 7 in. Reinforced Concrete Carriageway and Artificial Stone Slab Footpaths. Also for the Making-up of Chapel Street, approx. length 250 yd. with Two Course Bitumen Macadam Surfacing and Artificial Stone Slab Footpaths.

The Specification, Bills of Quantities, Conditions of Contract and Forms of Tender can be obtained from the Borough Engineer and Surveyor, H. D. PEAKE, M.Sc.(Eng.), M.I.C.E., 7 Little Park Gdns., Enfield, Middx., on payment of £5 deposit, returnable on receipt of bona-fide Tenders and/or the return of all documents. The above documents and Plans can be inspected at the Borough Engineer's Office without charge during ordinary office hours (excluding Saturdays).

Tenders must reach the undersigned not later than Noon on TUESDAY, 21st November, 1961, and no Tender will be received except in the official Tender envelope, sealed and endorsed "Tender for Private Street Works—Six Streets." The Tender envelope shall not bear any mark or name indicating the sender.

Tenders should note that the Council does not bind itself to accept the lowest or any Tender.

CYRIL E. C. R. PLATTEN,
Town Clerk.

Civic Centre,
Enfield, Middx.

BOROUGH OF EPSOM AND EWELL.

CONSTRUCTION OF WEIGHBRIDGE PIT AND OFFICE.

The CORPORATION invite TENDERS from experienced contractors for the CONSTRUCTION of a BRICK WEIGHBRIDGE PIT, WEIGHBRIDGE OFFICE, and ancillary Drainage and Carriageway Works, at the Corporation CENTRAL DEPOT, LONGMEAD INDUSTRIAL ESTATE, Epsom.

Copies of the Conditions of Contract, Specification, Bill of Quantities, Conditions and Form of Tender may be obtained from the Office of COLIN COBBETT, M.I.C.E., M.I.Mun.E., Borough Engineer and Surveyor, Town Hall, Epsom, during working hours, upon payment of a deposit of £2 2s. Deposits will be returned to contractors submitting a bona-fide Tender not subsequently withdrawn.

Tenders must be delivered to me, at the address mentioned below, not later than 10 a.m. on MONDAY, 6th November, 1961, and no Tender will be received and considered unless it is enclosed in a plain sealed envelope endorsed "Weighbridge Pit and Office." The envelope must not bear any mark or name indicating the sender.

The Corporation do not bind themselves to accept the lowest or any Tender.

EDWARD MOORE,
Town Clerk.

Town Hall,
The Parade,
Epsom, Surrey,
September, 1961.

THE URBAN DISTRICT COUNCIL OF HAVANT AND WATERLOO.

TENDERS are invited for the CONSTRUCTION of a TEMPORARY CAR PARK north of the HAVANT STATION, consisting of the Laying of 1,080 sq. yd. of Hardcore to a 7 in. thickness. The Provision of a Precast Concrete Soakaway, and ancillary works.

Conditions of Contract and Drawings may be inspected at the Office of the Engineer and Surveyor, 1 Park Road North, Havant, from whom a Specification, Bill of Quantities and Form of Tender may be obtained.

No Tender will be received except in a plain sealed envelope which must bear the word "Tender," followed by the subject to which it relates, but shall not bear any name or mark indicating the sender.

Tenders must be delivered to the CLERK OF THE COUNCIL, Town Hall, Havant, not later than 12 Noon on the 6th NOVEMBER, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

HAVERHILL (SUFFOLK) URBAN DISTRICT COUNCIL.

FIXED-PRICE TENDERS are invited for a BLOCK of SIX OLD PERSONS' BUNGALOWS (total area 2,700 super. ft.), and ancillary works.

Bills of Quantities and Drawings obtainable from J. C. MYERS, Chartered Architect, 23a High Street, Haverhill, on deposit of £3 3s. made payable to the Haverhill Urban District Council.

Documents available 21st October, 1961.

Tenders, in sealed envelopes endorsed "Old Persons' Bungalows," must reach the undersigned by 13th NOVEMBER, 1961.

The Council do not undertake to accept the lowest or any Tender.

W. C. BLAKE,
Clerk of the Council.

Council Offices,
Haverhill,
Suffolk.

10th October, 1961.

STRATFORD-ON-AVON RURAL DISTRICT COUNCIL.

3 IN. DIA. WATER MAINS EXTENSION—WELFORD PASTURES, WELFORD-ON-AVON.

FIXED-PRICE TENDERS are invited for the LAYING AND JOINTING of approx. 1,470 lin. yd. of 3 in. dia. FLEXIBLE JOINTED SPUN-IRON PIPES and Specials from Hill to Welford Pastures, Welford-on-Avon.

General Conditions of Contract, Specification and Bills of Quantities may be obtained from the Council's Engineer and Surveyor, A. J. WOOD, A.I.A.S., Engineer and Surveyor, 5 Tyler Street, Stratford-on-Avon.

Applications for these documents must be accompanied by a deposit of £2 2s. which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Sealed Tenders, in the envelopes provided, must be delivered to the undersigned not later than 12 Noon on THURSDAY, the 23rd November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

D. W. NEWPORT,
Clerk of the Council.

Council Offices,
11 Guild Street,
Stratford-on-Avon,
11th October, 1961.

CONTRACTS

BOROUGH OF ROWLEY REGIS.

SURFACING OF APPROACH ROADS TO CREMATORIUM, POWKE LANE, OLD HILL.

TENDERS are invited for the PREPARATION AND RESURFACING with hot rolled asphalt and bituminous macadam of approximately 3,200 sq. yd., and 1,500 sq. yd., respectively, of existing CARRIAGEWAYS. Incidental works include approx. 450 lin. yd. of kerbing and 100 lin. yd. of agricultural sub-drains.

Specification, and Bill of Quantities may be obtained from, and Conditions of Contract and plans inspected at the office of the Borough Engineer and Surveyor, S. G. WOOD, M.I.Mun.E., at the address below, on payment of a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender and not subsequently withdrawn.

Tenders must be sent to the undersigned in the envelope provided, endorsed "Surfacing of Approach Roads to Crematorium" to arrive not later than Noon on SATURDAY the 28th October, 1961.

G. C. COOKSON, Town Clerk.

Municipal Buildings, Old Hill, Staffs.

BOROUGH OF ANDOVER.

CONCRETE SERVICE RESERVOIR.

TENDERS, on a Fixed-price Basis, are invited from experienced contractors for the CONSTRUCTION of a 1m.-gallon REINFORCED CONCRETE COVERED SERVICE RESERVOIR, and other ancillary works, at MICHELDEVER ROAD, Andover.

Copies of the Specification, Bills of Quantities and Form of Tender may be obtained from the Borough Engineer and Surveyor, at the address below, upon payment of Two Guinea deposit which will be repaid upon the receipt of a bona-fide Tender and the return of all documents. The Contract Drawings and the General Conditions of Contract may be inspected at the Office of the Engineer during normal business hours.

Tenders, sealed in the envelope provided, must reach the undersigned not later than Noon on FRIDAY, 17th November, 1961.

The Council does not bind itself to accept any or the lowest Tender.

J. WHATELY, Town Clerk.

Municipal Offices, Beech Hurst, Weylhill Road, Andover.

RAWMARSH URBAN DISTRICT COUNCIL.

HIGHWAYS ACT, 1959, AND CODE OF 1892.

TENDERS are invited on a Fixed-price Basis for the MAKING-UP OF HUTCHINSON ROAD, Rawmarsh. Plans showing the works involved may be inspected at the Council Offices, Rawmarsh, during normal office hours.

Contractors desiring to tender should apply to the Council's Engineer and Surveyor for Specifications, Bills of Quantities and Form of Tender.

Sealed Tenders to be returned to the undersigned, marked "Hutchinson Road—Private Street Works," not later than TUESDAY, the 14th November, 1961.

G. WASHINGTON ROLLS, Clerk to the Council.

Council Offices, Parigate, Yorks, W.R. 11th October, 1961.

SWAFFHAM URBAN DISTRICT COUNCIL.

STREET LIGHTING IMPROVEMENT SCHEME.

TENDERS are invited for the SUPPLY and ERECTION OF 37 GROUP "A" STEEL LIGHTING COLUMNS, together with the Supply and Fitting of all necessary equipment, and the ancillary works comprised in the Scheme.

A copy of the Site Plan, Specification and Bill of Quantities may be obtained from the undersigned. The Form of Tender, and a priced Bill of Quantities must be delivered in a sealed envelope endorsed "Tender for Street Lighting Improvements," to the Clerk of the Council before Noon on MONDAY, 30th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

JOHN MILES, Surveyor.

Town Hall, Swaffham, Norfolk.

RURAL DISTRICT COUNCIL OF SEDBERGH.

TELEVISION SYSTEM.

TENDERS are invited for the ERECTION of a MASTER AERIAL, the PROVISION of AMPLIFIERS, and INSTALLATION of DISTRIBUTION CABLE to 220 council houses in SEDBERGH.

Detailed specifications and plans can be obtained from the undersigned on payment of £2 (returnable on receipt of a bona-fide Tender).

Tenders in plain sealed envelopes marked "T.V." to be in my hands by Noon on the 8th NOVEMBER, 1961.

D. WARING, Clerk of the Council.

Council Offices, Sedburgh, 9th October, 1961.

LINCOLNSHIRE RIVER BOARD.

BOYGRIFT PUMPING SCHEME.

DEEPENING OF BOYGRIFT DRAIN.

TENDERS are invited from experienced civil engineering contractors for the DEEPENING of the BOYGRIFT DRAIN for approx. 5½ miles from the Sea Bank south of Sutton-on-Sea, Lincolnshire, to Farlestone, Lincolnshire.

The proposed works involve the movement of over 200,000 cu. yd. of material and all ancillary works, including the demolition and subsequent reconstruction of a farm bridge, two footbridges and two culverts. Contract documents may be obtained from the Engineer to the Board upon the payment of a deposit of £5 5s. returnable on the submission of a bona-fide Tender not subsequently withdrawn.

Tenders, enclosed in a plain sealed envelope and endorsed in the top left hand corner "Tender for Boygrift Drain," shall be returned to the undersigned by Noon on MONDAY, 13th November, 1961.

G. E. PHILLIPPO, Clerk to the Board.

50 Wide Bargate, Boston, Lincs.

CONTRACTS

BOROUGH OF HESTON & ISLEWORTH.

PUBLIC SHELTER—JERSEY GARDENS, HOUNSLOW.

TENDERS are invited for the ERECTION of a BRICK-BUILT SHELTER at the ABOVE SITE. Firms should apply to the Borough Engineer and Surveyor, 88 Lampton Road, Hounslow.

Tenders must be sealed, in the envelopes provided, and received by me by 10 a.m. on 9th NOVEMBER, 1961.

The Council is not bound to accept any Tender.

D. MATHIESON, Town Clerk.

Town Hall, Hounslow, Middx.

BOROUGH OF LYMINGTON.

REPAIR OF SEA OUTFALL AT PENNINGTON MARSH.

FIXED-PRICE TENDERS are invited for the FOLLOWING WORKS:

- (1) Provision and Driving of Piled Frames along 352 lin. yd. of existing 30in. dia. Cast-iron Outfall in the Solent;
- (2) Vertical Realignment of 264 lin. yd. of the above Pipe;
- (3) General Inspection and Replacement of Jointing Bolts on 352 lin. yd.

The work will require the use of crane barge and piling equipment and may also require underwater equipment.

The Specification, Bill of Quantities and Form of Tender may be obtained, and Drawings inspected, on application to the Borough Engineer and Surveyor, Town Hall, Lymington, upon payment of £2 2s. This will be returned upon the receipt of bona-fide Tender not subsequently withdrawn, and the return of all documents.

Sealed Tenders, in the envelope supplied, bearing no name or mark indicating the sender, must be delivered to the Town Clerk at the Town Hall, not later than 1st NOVEMBER, 1961.

A. L. SLATER, Town Clerk.

Town Hall, Lymington.

HERNE BAY URBAN DISTRICT COUNCIL.

TENDERS are invited for the ERECTION OF 14 FLATS ON LAND at HERNE STREET, HERNE, Herne Bay.

Form of Tender and Bills of Quantities may be obtained from, and Specification, General Conditions of Contract and Drawings may be seen at, the Office of the Architect, J. C. CLAGUE, Lloyds Bank Chambers, High Street, Herne Bay.

Tenders, in the endorsed envelopes provided, must be returned to the undersigned not later than the 8th NOVEMBER.

The Council does not bind itself to accept the lowest or any Tender.

G. A. BAGNALL, Clerk of the Council.

Council Offices, Herne Bay, 9th October, 1961.

GUILDFORD RURAL DISTRICT COUNCIL.

TENDERS are invited from experienced contractors for the CONSTRUCTION OF THE FOLLOWING WORKS:

- (a) Approx. 370 sq. yd. of Concrete Carriageway, 230 sq. yd. of Footpaths, and ancillary works, at Longacre-Longfields, Ash.
- (b) Approx. 1,350 sq. yd. of Footpaths, and ancillary works at Almsgate Housing Estate, Compton.

Tender Forms, Plans and Specifications only will be provided on application to the undersigned, together with a deposit of £2 2s. for each set of documents made payable to the Guildford Rural District Council, to be refunded on receipt of a bona-fide Tender.

Tenders, in the envelopes provided, must be delivered to E. W. SELLINGS, Clerk of the Council, not later than Noon on MONDAY, 6th November, 1961.

The Council does not bind itself to accept the lowest or any Tender.

J. W. SNAPE, M.I.Mun.E., M.R.S.H., A.M.Inst.H.E., Engineer and Surveyor.

Millmead House, Guildford, Surrey.

CHESTERFIELD RURAL DISTRICT COUNCIL.

TENDERS are invited for the FOLLOWING SCHEME:

Northern Area Sewerage and Sewage Disposal Purification Scheme—Part II—Eckington and Killamarsh. Comprising the Construction of a 35ft. dia. Concrete Tank, Concrete Balancing Tank, and the Laying of approx. 1,250 yd. of Sewers and Rising Mains in S.W.G. Concrete and Cast-iron Pipe, together with other miscellaneous items.

Plans and General Conditions of Contract may be seen at the Engineer's Department. Bills of Quantities, Specification and Form of Tender may be obtained on application to the Council's Engineer and Surveyor, J. B. WIKLEY, M.Eng., M.I.C.E., M.I.Mun.E., Barrister-at-Law, Rural Council House, Saltergate, Chesterfield, on payment of a deposit of Two Guinea, which sum shall be refundable on receipt of a bona-fide Tender not subsequently withdrawn, together with all the documents.

Tenders, in a plain sealed envelope suitably endorsed as described in the Bill, should be returned to the Clerk of the Council by not later than 12 Noon on THURSDAY, 9th November, 1961.

H. O. HAWKINS, Clerk of the Council.

Millmead House, Chesterfield, Derby.

EAST SUFFOLK AND NORFOLK RIVER BOARD.

RIVER DEBEN (LOWER)—WOODBRIDGE WALL.

SUPPLY AND DELIVERY OF CLAY.

TENDERS are invited for the SUPPLY and DELIVERY TO SITES on the RIVER WALL at Woodbridge, Suffolk, of approx. 3,200 cu. yd. of CLAY, suitable for constructing a Tidal Embankment.

Further particulars and Tender Forms may be obtained from the Chief Engineer, at the address below.

Tenders, enclosed in a plain sealed envelope, endorsed "Tender for Clay," must be received by the undersigned not later than 9 a.m. on 31st OCTOBER, 1961.

S. VINCENT ELLIS, Clerk of the Board.

The Cedars, Road, Aldeburgh, Norfolk, NOR.81E. 11th October, 1961.

CONTRACTS

COUNTY BOROUGH OF CROYDON.

NOTICE TO BUILDERS.

Contractors who have the organisation and labour force to carry out the work expeditiously, and who wish to TENDER for BUILDING FOUR HOUSES and 33 FLATS in one Contract on Five small sites at PARCHMORE ROAD, TOTTON ROAD, SELHURST ROAD, GLOUCESTER ROAD and DUNDEE ROAD, should send their names to the Borough Engineer, Town Hall, Croydon, for Bills of Quantities.

Closing date for Tenders: 28th NOVEMBER, 1961.

E. TABERNER, Town Clerk.

COUNTY BOROUGH OF BURNLEY.

WATER DEPARTMENT.

CONTRACT FOR PIPELAYING—ROWLEY.

TENDERS are invited from experienced contractors for LAYING approx. 700 yd. of 16in. SPUN-IRON MAIN in order to by-pass ROWLEY TIF, near Burnley.

Form of Tender, Specification and Drawings may be obtained from the Engineer and Manager, 64 Yorkshire Street, Burnley, on payment of a deposit of £2 2s. which will be returned on receipt of a bona-fide Tender.

Tenders are to be returned to reach the undersigned not later than 9 a.m. on MONDAY, 13th November, 1961, in the envelope provided, endorsed "Rowley Pipeline," but bearing no other mark of identification.

C. V. THORNLEY, Town Clerk.

Town Hall, Burnley.

BOROUGH OF BRIGHOUSE.

PRIVATE STREET WORKS.

CONTRACT P.S.W. NO. 31—MANLEY STREET CONTRACT P.S.W. NO. 32—BARTON STREET (PART).

TENDERS are invited for the MAKING-UP of MANLEY STREET and BARTON STREET (Part). Plans, etc., may be inspected, and Specifications, Forms of Tender and Bills of Quantities may be obtained from H. SNEEZUM, A.M.I.C.E., Borough Engineer, Commercial Street, Brighouse, upon payment of a deposit of £1, returnable on receipt of a bona-fide Tender and the return of all documents.

Sealed Tenders, on the prescribed form, in envelopes endorsed "Tender for Private Street Works," and bearing no indication of the sender, must reach the undersigned not later than the 8th NOVEMBER, 1961.

JOHN R. LIDDLE, Town Clerk.

Town Hall, Brighouse, 12th October, 1961.

BOROUGH OF EAST RETFORD.

HIGHWAYS ACT, 1959—PRIVATE STREET WORKS.

MAKING-UP OF GROVE COACH ROAD (PART).

TENDERS are invited for the CONSTRUCTION of approx. 53 yd. of CARRIAGEWAY, Footpaths, and incidental works, at Grove Coach Road, Retford.

Specification and Quantities may be obtained from the Borough Engineer and Surveyor, Municipal Offices, Retford, Notts.

Tenders to be returned to the undersigned not later than Noon on SATURDAY, the 11th November, 1961.

K. D. HANNA, Town Clerk.

Municipal Offices, Retford, Notts. 10th October, 1961.

BOROUGH OF LOUGHBOROUGH.

STREET LIGHTING OF TRUNK ROAD, A.6, LOUGHBOROUGH BETWEEN SWINGBRIDGE ROAD AND BISHOP MEADOW ROAD.

TENDERS are invited for the PROVISION and ERECTION OF 13 GROUP "A" LIGHTING UNITS, consisting of Steel Columns, 400-W Mercury Fluorescent Lamps, and Auxiliary Equipment.

General Conditions of Contract and Plans may be inspected during office hours, and Specification, Bills of Quantities and Form of Tender obtained at the Office of the undersigned on the deposit of Two Guinea, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, to be made out on the form supplied, are to be delivered in a plain sealed envelope endorsed "Street Lighting—Trunk Road, A.6," addressed to ARTHUR USHER, Town Clerk, Southfields, Loughborough, not later than Noon on TUESDAY, 14th November, 1961.

JOHN S. BATES, A.M.I.C.E., M.I.Mun.E., A.M.T.P.I., Borough Engineer and Surveyor.

Southfields, Loughborough, 11th October, 1961.

CITY AND COUNTY OF NEWCASTLE UPON TYNE.

TENDERS FOR ROADWORKS.

The HOUSING COMMITTEE OF THE CITY COUNCIL is prepared to receive TENDERS for ROADWORKS, as follows:

- (a) Walker Road (Church Street) Redevelopment—Multi-storey and Four-storey Flats Sites.
- (b) Construction and maintenance of approx. 5,000 sq. yd. of Bitumen Macadam Carriageways; the Reshaping and Surfacing with Bitumen Macadam of 2,000 sq. yd. of existing Carriageways, together with the Laying of 5,500 sq. yd. of Precast Concrete Paving Flags, and ancillary works.

Eastfield Avenue, Walker—Multi-storey Flats Site.

Construction and Maintenance of approx. 500 sq. yd. of Reinforced Concrete Carriageway, 1,000 sq. yd. of Precast Concrete Paving, and ancillary works.

Bills of Quantities and Forms of Tender may be obtained, and the Drawings inspected, at the Office of the City Engineer, Town Hall, Newcastle upon Tyne, to whom sealed Tenders, enclosed in the envelopes provided, are to be delivered not later than 10 a.m. on THURSDAY, 16th November, 1961.

No Tender will be considered unless it is enclosed in the official envelope provided for that purpose, and such envelope must not bear any name or mark indicating the sender.

The Committee does not bind itself to accept the lowest or any Tender.

JOHN ATKINSON, Town Clerk.

Town Hall, Newcastle upon Tyne.

CONTRACTS

BOROUGH OF HARROW.

IMPROVEMENT TO BRIDGE MR.50—
MARSH ROAD, PINNER.

TENDERS are invited for the BREAKING-OUT and LOWERING of 1,040 sq. yd. of CARRIAGEWAY, and for its RECONSTRUCTION in REINFORCED CONCRETE, together with all ancillary works. Drawings and Conditions of Contract may be inspected at the Office of, and a copy of the Form of Tender, Specification and Bills of Quantities obtained on application to, the Borough Engineer, at the Council Offices, 48 Urbridge Road, Stanmore, Middx., on payment of Two Pounds by crossed cheque made payable to Harrow Corporation, returnable where a bona-fide Tender reaches me in time.

Tenders, on prescribed forms, enclosed in a plain envelope bearing no indication of the sender and endorsed "Tender—Improvement to Bridge MR.50, Marsh Road, Pinner," to be delivered to my Office not later than 10 a.m. on TUESDAY, 7th November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

DAVID PRITCHARD,
Town Clerk.

Town Clerk's Office,
Harrow West Lodge,
Harrow, Middx.

BOROUGH OF HALESOWEN.

SLIMS GATE.

ERECTION OF AGED PERSONS' BUNGALOWS.

FIXED-PRICE TENDERS are invited for the CONSTRUCTION OF SIX PAIRS OF SEMI-DETACHED TRADITIONAL TYPE SINGLE-BEDROOM BUNGALOWS, together with the Construction of Entrance Road and Siteworks, at Slims Gate, Halesowen.

Drawings and General Conditions of Contract may be inspected, and the Form of Tender, Bill of Quantities and Specification obtained, on application to the Borough Engineer and Surveyor, Council House, Halesowen, on payment of a £2 2s. deposit which will be returned on receipt of a bona-fide Tender. Applications must be received by 12 Noon on SATURDAY, 28th October, 1961.

J. B. MCCOKE,
Town Clerk.

Council House,
Halesowen.

CITY OF LEEDS.

HIGHWAYS DEPARTMENT.

The HIGHWAYS COMMITTEE of the LEEDS CITY COUNCIL invite TENDERS for:

(A) PRIVATE STREET WORKS:

Kerbing, Tarmacadam Footpaths, Tarmacadam Carriageway, etc., in the following:

(B) HOUSING ESTATE WORKS:

(a) Meynell Street Redevelopment Area—Phase 2.

General Site Clearance, Excavation and Filling, Construction of Carriageways and Footpaths including Concrete Haunch, Hardcore Foundations, Kerbing, Tarmacadam Surfacing, and other incidental works.

(b) Belle Isle Temporary Bungalow Site: General Site Clearance, Excavation and Filling, Reconstruction of Carriageways and Footpaths including Concrete Haunch, Hardcore Foundations, Kerbing, Tarmacadam Surfacing, and other incidental works.

Forms of Tender and Bills of Quantities may be obtained upon payment of a deposit of One Guinea, which amount will be returned upon receipt of a bona-fide Tender. Plans, Specifications and copies of the documents forming the Contract may be inspected upon application to the Highways Engineer, 155 Kirkstall Road, Leeds 4.

Tenders will be considered only when submitted sealed in the envelope provided, endorsed "Highways Department—Tender for Contractors' Works," and not bearing any name or mark indicating the sender.

Tenders must be delivered at the Town Clerk's Office (Committee Department), Room 57, Civic Hall, Leeds, 1, not later than 10 a.m. on THURSDAY, the 2nd November, 1961.

The lowest or any Tender will not necessarily be accepted.

W. J. HISCOCK,
Highways Engineer.

October, 1961.

PETERBOROUGH RURAL DISTRICT COUNCIL.

DALE MOBILE ALTERNATOR UNIT.

TENDERS are invited for the SUPPLY and DELIVERY of a DALE MOBILE ENGINE/ALTERNATOR UNIT.

Specification and Tender Form can be obtained from the Council's Surveyor, M. R. GIBBS, at 51 Priestgate, Peterborough, and completed Tender Form should be delivered to the undersigned, in the envelope provided, not later than 10 a.m. on TUESDAY, 14th November, 1961.

G. W. WRIGHT,
Clerk of the Council.

51 Priestgate,
Peterborough.

12th October, 1961.

PETERLEE DEVELOPMENT CORPORATION.

APPLICATIONS TO TENDER for the FOLLOWING CONTRACTS are invited:

CONTRACT NO. 137—Surfacing of Burnhope Way extension and Passfield Way, etc. (approx. 6,800 sq. yd. Bitumen Macadam Base Course and 21,300 sq. yd. of Fine Cold Asphalt, etc.).

CONTRACT NO. 137B—Paving Verges, etc., on Burnhope Way extension, Passfield Way, etc. (approx. 4,100 sq. yd. Concrete Slab Paving, etc.).

CONTRACT NO. 139—Roads and Sewers—Eastway (approx. 400 lin. yd. Flexible Carriageway, together with 9 in. dia. Sewers, etc.).

Application to tender, stating for which contract or contracts the applicant wishes to tender, should reach the undersigned not later than MONDAY, 30th October, 1961.

The Corporation does not bind itself to accept the lowest or any Tender.

A. V. WILLIAMS,
General Manager.

Shotton Hall,
Old Shotton,
Peterlee,
Horden,
Co. Durham.

CONTRACTS

STATE ELECTRICITY COMMISSION OF VICTORIA.

MAIN LINE CONVEYORS FROM MORWELL OPEN CUT-HAZELWOOD PROJECT.

The Commission is inviting TENDERS for the DESIGN, MANUFACTURE, SUPPLY, DELIVERY, ERECTION AND MAINTENANCE of the FOLLOWING: Two Electrically Operated Belt Conveyor Lines, 7,300ft. and 8,500ft. long, capable of continuously receiving, conveying and discharging brown coal at 2,200 tons per hour, from Morwell Open Cut-Hazelwood Project.

Full particulars are available from the Agent-General for Victoria, Victoria House, Melbourne Place, Strand, London, W.C.2, and also from the Purchasing Branch of the Commission, 22 William Street, Melbourne, Victoria, Australia.

Tenders, endorsed "Tender to Specification No. 61-62/141," are returnable direct to the COMMISSION, 22 William Street, Melbourne, Victoria, Australia, by 3 p.m. on 30th JANUARY, 1962.

The Commission does not bind itself to accept the lowest or any offer.

22-32 William Street,
Melbourne,
Victoria,
Australia.

COUNTY COUNCIL OF DURHAM.

TENDERS invited for SUPPLY of the FOLLOWING:

- (1) Fluid Disinfectant.
- (2) Carpets and Rugs.

Forms of Tender, returnable by 3rd NOVEMBER, 1961, and details from undersigned.

G. H. METCALFE,

Director of Education.

Shire Hall,
Durham.

9th October, 1961.

NOTTINGHAMSHIRE COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

Firms desirous of submitting TENDERS for the SUPPLY of the FOLLOWING, required during the year commencing 1st April, 1962, should forward their names to the County Surveyor, Shire Hall, Nottingham, before 10 a.m. on MONDAY, 13th November, 1961—

- (a) Dry and Coated Stone and Slag and Hot and Cold Asphalt.
- (b) Tar, Tar Compounds, Bituminous Compounds and Cold Emulsions.
- (c) Castings.
- (d) Tools.
- (e) Salt Glazed Stoneware Pipes.
- (f) Plastic White Line Material.
- (g) Concrete Products.
- (h) Hire of Surfacing Machines.
- (i) Hire of Road Rollers.
- (j) Hire of Heating and Planing Plant.
- (k) Daywork Haulage.

Applicants must state the specific items for which they wish to tender, quoting the index letters shown above.

A. R. DAVIS,

Clerk of the County Council.

BOROUGH OF SURBITON.

ROAD IMPROVEMENT IN MAPLE ROAD, SURBITON.

TENDERS are invited for the REGRADING and RESURFACING OF PART OF MAPLE ROAD, together with incidental works, in accordance with the Plans, Specification, Bills of Quantities and General Conditions of Contract, which may be obtained from the Office of R. THIRLWAY, M.I.Mun.E., M.I.Struct.E., Borough Engineer and Surveyor, Council Offices, Ewell Road, Surbiton, Surrey.

Tenders, on the form provided, enclosed in the endorsed envelope provided, and bearing no mark indicating the sender, must be delivered to the undersigned and received by him not later than Noon on FRIDAY, 3rd November, 1961.

The Corporation do not bind themselves to accept the lowest or any Tender.

JOHN H. A. CRUNDELL,

Town Clerk.

CORPORATION OF BARKING.

DEPARTMENT OF THE BOROUGH ARCHITECT.

ERECTION OF 15 GARAGES—GREATFIELDS ROAD. The COUNCIL invites applications to TENDER for the SUPPLY and ERECTION, upon prepared foundations, of FIFTEEN GARAGES, in Precast Concrete Construction with Asbestos Roofs.

Specifications and Drawings will be supplied in due course to selected applicants. Applications, on a form to be obtained from the Borough Architect, Town Hall, Barking, should reach the undersigned not later than 10 a.m. on the 27th OCTOBER, 1961.

E. R. FARR,

Town Clerk.

CITY OF SALFORD.

EDUCATION COMMITTEE.

TENDERS are invited, by 10 a.m. on MONDAY, 27th November, 1961, for the SUPPLY to SCHOOLS in the City of the FOLLOWING:—

- (1) Books.
- (2) Stationery, Apparatus, etc.
- (3) Art and Craft Materials.
- (4) Needlework Materials.

Copy of Specification and Form of Tender may be obtained from the DIRECTOR OF EDUCATION, Chapel Street, Salford, 3.

CITY OF LEEDS.

HIGHWAYS DEPARTMENT.

The HIGHWAYS COMMITTEE of the LEEDS CITY COUNCIL invite TENDERS for the SUPPLY AND DELIVERY OF MECHANICAL PLANT.

Three—Contractors' Mobile Mess Cabins. General Specification of requirements may be had on application to the Highways Engineer, 155 Kirkstall Road, Leeds 4.

Tenders will be considered only when submitted sealed in the envelope provided, endorsed "Highways Department—Tender for Mechanical Plant," and not bearing any name or mark indicating the sender.

Tenders must be delivered at the Town Clerk's Office (Committee Department), Room 57, Civic Hall, Leeds, 1, not later than 10 a.m. on THURSDAY, the 2nd November, 1961.

The lowest or any Tender will not necessarily be accepted.

W. J. HISCOCK,
Highways Engineer.

October, 1961.

CONTRACTS

DERBYSHIRE COUNTY COUNCIL.

BRIDGES AND HIGHWAYS DEPARTMENT.
ROAD IMPROVEMENT AT CROMFORD HILL, B.5036, CROMFORD.

TENDERS are invited for IMPROVEMENT WORKS, comprising approx. 3,000 cu. yd. of EXCAVATION and 600 lin. yd. ROADWORKS.

Form of Tender, etc., may be obtained from, and Plans seen at, the Office of the County Surveyor, County Offices, Matlock, on payment of £2 deposit. Deposit will be refunded on receipt of bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelope endorsed "Improvement at Cromford B. and H.," to be delivered to the Clerk of the County Council, County Offices, Matlock, Derbyshire, by MONDAY, 20th November, 1961.

The County Council does not bind itself to accept the lowest or any Tender.

S. MEHEW,
County Surveyor.

County Offices,
Matlock, Derbs.

BOROUGH OF CALNE.

OXFORD ROAD AREA.

CONSTRUCTION OF ROADS AND SEWERS.

TENDERS will shortly be invited for the CONSTRUCTION of approx. 1,600 lin. yd. of ROADS and SEWERS at the ABOVE, and contractors desirous of tendering should forward a deposit of £2 2s. to the Architects, MESSRS. GEORGE BROWN AND PARTNERS, Equity and Law Building, Baldwin Street, Bristol, 1, from whom Bills of Quantities and Tender documents may be obtained. Cheques should be made payable to Calne Borough Council and will be returned upon the receipt of a bona-fide Tender.

The Council do not bind itself to accept the lowest or any Tender.

L. CAVE,

Town Clerk.

Municipal Offices,
Patford Street,
Calne, Wilts.

13th October, 1961.

CITY OF BIRMINGHAM.

LAYOUT OF WOODLAND GARDEN OF REST, INCLUDING CONSTRUCTION OF GRAVEL PATHS, SUPPLY AND PLANTING OF TREES, SHRUBS AND HEDGES AT YARDLEY CREMATORIUM, BIRMINGHAM.

TENDERS are invited from competent landscape contractors for the ABOVE WORK.

Bills of Quantities, Drawings, Specification and Form of Tender may be obtained from the General Manager, Parks Department, Baskerville House, Civic Centre, Broad Street, Birmingham, 1, on payment of a deposit of £2 2s. which will be refunded on receipt of a bona-fide Tender.

Tenders must be delivered to the undersigned not later than Noon on MONDAY, 13th November, 1961.

T. H. PARKINSON,

Town Clerk.

Council House,
Birmingham, 1.

19th October, 1961.

CITY OF BIRMINGHAM.

LAYOUT OF ORCHARD GARDEN OF REST, INCLUDING CONSTRUCTION OF GRAVEL PATHS, KERBERING, SUPPLY AND PLANTING OF ORNAMENTAL TREES, SHRUBS AND HERBACEOUS PLANTS AT LODGE HILL CREMATORIUM, SELLY OAK, BIRMINGHAM.

TENDERS are invited from competent landscape contractors for the ABOVE WORK.

Bills of Quantities, Drawings, Specification and Form of Tender may be obtained from the General Manager, Parks Department, Baskerville House, Civic Centre, Broad Street, Birmingham, 1, on payment of a deposit of £2 2s. which will be refunded on receipt of a bona-fide Tender.

Tenders must be delivered to the undersigned not later than Noon on MONDAY, 13th November, 1961.

T. H. PARKINSON,

Town Clerk.

Council House,
Birmingham, 1.

19th October, 1961.

BEESTON AND STAPLEFORD

URBAN DISTRICT COUNCIL.

TENDERS are invited for the SUPPLY and ERECTION of approx. 350 yd. of CONCRETE POST AND WIRE FENCING, 6 ft. high, comprising Reinforced Concrete Posts and Plastic Galvanised Straining Wires and Chain Link Fencing, at the INHAM NOOK RECREATION GROUND, Chilwell, Beeston, Nottingham.

Forms of Tender and particulars from the Engineer and Surveyor.

Tender to be delivered to the undersigned, in a plain sealed envelope endorsed "Fencing—Inham Nook Recreation Ground," not later than 12 Noon, 6th NOVEMBER, 1961.

H. D. JEFFERIES,

Clerk of the Council.

Town Hall,
Beeston,
Nottingham.

12th October, 1961.

THE URBAN DISTRICT COUNCIL OF ESTON.

TENDERS are invited for the CONSTRUCTION of HARDSTANDINGS for five Garage Sites at CHURCH LANE HOUSING ESTATE.

Copies of the Specification, Bill of Quantities and Form of Tender may be obtained from the Engineer and Surveyor at the address stated below, on payment of a deposit of £2 2s. which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, or the return of the documents before the date given below.

The General Conditions of Contract and Drawings may be inspected at the Office of the Engineer and Surveyor during normal working hours.

Tenders, in plain sealed envelopes endorsed "Hardstandings for Garage Sites," but not bearing any name or mark indicating the sender, must reach me not later than Noon on THURSDAY, 2nd November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

T. MYRDDIN BAKER,

Clerk of the Council.

Town Hall,
Fabian Road,
South Bank,
Middlesbrough.

12th October, 1961.

CONTRACTS

COUNTY BOROUGH OF SOUTHAMPTON.

Southampton C.B.C. invites TENDERS on Bills of Quantities available in mid-November for the following:

CONTRACT B.370—31 Traditional Houses—Summit Way, Southampton.
CONTRACT B.373—Two Blocks of Five-storey Traditional Flats, Type A.5 (30 flats per block), Townhill Park.
Applications for Tender documents to the BOROUGH ENGINEER, Civic Centre, Southampton, by 10 a.m. on WEDNESDAY, 1st November, 1961.

BOROUGH OF REIGATE.

65 BRICK-BUILT GARAGES IN REIGATE AND REDHILL.

FIXED-PRICE TENDERS are invited for 40 GARAGES at ARBUTHNOT ROAD, 14 GARAGES at ATHERFIELD ROAD, and 11 GARAGES at RUTLAND CLOSE, together with Drainage and Site Works, based upon Specification and detailed Plans obtainable from the Borough Engineer and Surveyor, Town Hall, Reigate, on payment of a deposit of £2 2s, refunded upon the submission of a bona-fide Tender or the return of all Plans and Documents.
Sealed Tenders, in the envelope provided, and endorsed "Tender for 65 Garages in Reigate and Redhill," must be returned to the undersigned not later than Noon on 17th NOVEMBER, 1961.

HEBER DAVIES, Town Clerk.

Town Hall,
Reigate,
October, 1961.

CITY AND COUNTY OF NEWCASTLE UPON TYNE.

The CORPORATION is prepared to receive a FIXED-PRICE TENDER for the UNMENTIONED WORK at HEATON PARK, Newcastle upon Tyne:
Demolition of an existing Bowls Pavilion, and the Erection of a new Bowls Pavilion incorporating Ladies' and Gent's Public Conveniences.

Contractors desirous of tendering for this work, which is to be carried out under the direction of, and in accordance with Plans and Specifications prepared by, MESSRS. W. DIXON AND SON, Chartered Architects, 1 Collingwood Street, Newcastle upon Tyne, are requested to send their names to the Director of Parks and Cemeteries, Jesmond Dene, Jesmond Dene Road, Newcastle upon Tyne, 2, not later than 24th OCTOBER, 1961.

Tender documents will be forwarded as early as possible after the above-mentioned date.
No Tender will be received except in the official envelope provided for that purpose, and such envelope shall not bear any mark indicating the sender.

The Corporation does not bind itself to accept the lowest or any Tender.

By Order,
JOHN ATKINSON, Town Clerk.

Town Hall,
Newcastle upon Tyne.

CITY OF PORTSMOUTH.

SOUTHEAST CASTLE—
DEMOLITION AND DISMANTLING OF STEEL-FRAMED GARAGES, BRICK BUILDINGS, ETC.

TENDERS are invited from experienced contractors for the ABOVE WORKS.

Form of Tender and other relevant documents may be obtained from the City Engineer, Municipal Offices, 1 Clarence Place, Portsmouth, on payment of a deposit of £1 which will be refunded on receipt of a bona-fide Tender and/or the return of all the documents.
Tenders, enclosed in the envelope provided, must be delivered to the undersigned not later than Noon on WEDNESDAY, 1st November, 1961.

J. R. HASLEGRAVE, Town Clerk.

Guildhall,
Portsmouth.

CITY OF YORK.

STREETS AND BUILDINGS COMMITTEE.

REPAIRS TO EAST PARAPET—QUEEN STREET BRIDGE.

TENDERS are invited from suitably experienced civil engineering and public works contractors for the REPAIRS TO EAST PARAPET, QUEEN STREET BRIDGE.

The Contract will include the Repair by Cement Gun of the existing Reinforced Concrete Parapet Girder on the east side of the bridge.

Drawings may be seen, and the Forms and Conditions of Tender and Contract, Specification of Works and Bill of Materials, may be obtained on application to the undersigned, on payment of a deposit of £1 which will be refunded on receipt of a bona-fide Tender. Cheques, postal orders, etc., shall be crossed and made payable to York Corporation.

Sealed Tenders, duly endorsed and enclosed in the envelopes provided, shall be returned to the undersigned, to be received not later than 12 Noon on TUESDAY, 7th November, 1961.

The lowest or any Tender will not necessarily be accepted.

CHAS. J. MINTER, City Engineer, Surveyor and Planning Officer.

7 St. Leonard's Place,
York,
October, 1961.

PLYMOUTH CITY WATERWORKS.

DOUSLAND WATER TREATMENT WORKS.

TENDERS are invited from experienced contractors for the CONSTRUCTION OF THE FOLLOWING:

Water Treatment Works (2½ million gallons per day capacity), comprising R.C. Reaction and Settling Tanks, R.C. Rapid Gravity Filters, and associated buildings;

R.C. Sludge Tank, 40,000-gallon R.C. Reservoir, and R.C. Roof to existing 180,000-gallon Reservoir.

It is intended that the whole shall be let in one Contract.

Plans, Specifications and Bills of Quantities may be seen at the Water Engineer's Office, 22 Portland Square, Plymouth, and copies may be obtained on payment of a deposit of four Guineas, to be returned on receipt of a bona-fide Tender.

Tenders are to be received by the Town Clerk, Pounds House, Peverell, Plymouth, by the First Post, FRIDAY, 17th November, 1961.

The Corporation does not bind itself to accept the lowest or any Tender.

N. E. ELLIOT, M.Sc., M.I.C.E., City Water Engineer.

SCOTTISH HOME DEPARTMENT.

LONDON-CARLISLE-GLASGOW-INVERNESS TRUNK ROAD, A.74.

IMPROVEMENT—
PARKHEAD-DUNEATON, LANARKSHIRE.

The SECRETARY OF STATE invites TENDERS for ROAD AND BRIDGE IMPROVEMENTS on TRUNK ROAD, A.74, between Parkhead and Duneaton, Lanarkshire.

The works include the Construction of Six Miles of Dual Carriageways, with accompanying Side Roads, Culverts, Bridge over Duneaton Water, and other ancillary works.

Contract documents and Drawings may be obtained from the Engineers, BASTIE, SHAW AND MORTON, C.E.E., 17 Blythwood Square, Glasgow, C.2, upon payment of a deposit of £20 by cheque made payable to the Order of the Queen's and Lord Treasurer's Remembrances. The deposit will be returned if a bona-fide Tender is submitted and not subsequently withdrawn.

Tenders, on the official form, which must be received before 4 p.m. on TUESDAY, 5th December, 1961, should be sent by Registered Post marked "Trunk Road, A.74—Duneaton Tender," to the SECRETARY, Scottish Home Department, Broomhouse Drive, Saughton, Edinburgh, 11.

The Secretary of State does not bind himself to accept the lowest or any Tender.

WEST SUSSEX COUNTY COUNCIL.

Contractors wishing to submit a TENDER for the UNMENTIONED SCHEME are invited to apply for information to tender; such applications to be addressed to the County Architect, County Hall, Chichester, to reach him not later than 1st NOVEMBER, 1961.

Alterations and Extensions to Worthing Police Station (Job No. 5732).

Quantities will be issued on or about 13th January, 1962.

The County Council does not bind itself to accept the lowest or any Tender, and the firm whose Tender is accepted must be prepared to enter into a contract in a form to be prepared by me.

T. C. HAYWARD, Clerk of the County Council.
County Hall,
Chichester.

EAST SUFFOLK COUNTY COUNCIL.

IPSWICH-WEEDON TRUNK ROAD, A.45.

CONTRACT NO. 48—BLAKENHAM-BAYLHAM SECTION.

TENDERS are invited for the RECONSTRUCTION of about 800 Yds. of TRUNK ROAD, A.45, between Bayham and Great Blakenham.

Construction will comprise Granular Sub-base: 8in. Lean Concrete Base, and Hot Rolled Asphalt Surfacing. Kerbing, Drainage and Footpath are also included.

Duration of Contract: Four months.
Tender documents available from County Surveyor, County Hall, Ipswich, upon deposit of the sum of £10, returnable on receipt of a bona-fide Tender.

Tenders must be received by the Clerk of the Council not later than 10 a.m. on FRIDAY, 10th November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

G. C. LIGHTFOOT, Clerk of the County Council.

County Hall,
Ipswich.

COUNTY BOROUGH OF GATESHEAD.

RECONSTRUCTION OF STATION ROAD.

TENDERS are invited for the WIDENING and SURFACING of the existing ROADWAY.

Details and Forms of Tender may be obtained from the Borough Surveyor, Municipal Buildings, Swinburne Street, Gateshead, 8.

Tenders to be returned to the undersigned not later than 12 Noon on 9th NOVEMBER, 1961.

C. D. JACKSON, Town Clerk.

Town Hall,
Gateshead, 8.

METROPOLITAN BOROUGH OF LEWISHAM.

NEW STREET WORKS—PARAGON PLACE, S.E.3.

TENDERS are invited for a LUMP-SUM CONTRACT for the MAKING-UP OF PARAGON PLACE, BLACKHEATH, S.E.3.

The works consist of the Construction of approx. 1,500 sq. yd. of Tarmacadam and Asphalt Carriageway, including Kerbs, Channels and Gullies, and approx. 800 sq. yd. of Tarmac Footways.

Drawings and Specifications may be obtained from the BOROUGH ENGINEER, Lewisham Town Hall, S.E.6, on payment of £2, returnable for bona-fide Tender. Closing date, 31st OCTOBER, 1961.

HORNCHURCH URBAN DISTRICT COUNCIL.

PROPOSED SEWAGE PUMPING STATION—PARSONAGE ROAD, RAINHAM, ESSEX.

SUPPLY OF PLANT AND IRONWORK.

TENDERS are invited from experienced firms for the SUPPLY AND DELIVERY on or after 2nd April, 1962, of the FOLLOWING GOODS—

(1) Sewage Pumping Plant, Electric Motors and ancillary Equipment, Wiring and Pipework, Valves and Fittings, with the Services of a skilled Fitter subsequently to supervise the erection of the plant on site. The proposed pumping station is required to deal with crude sewage at a maximum rate of approx. 275 g.p.m.; and/or

(2) Ironwork including a Manhole Cover and Frame, a Penstock and Galvanised Mild Steel Ladders and Handrails.

The Specification, General Conditions of Contract, a preliminary Drawing and Form of Tender may be obtained from the Engineer and Surveyor, Council Offices, Billet Lane, Hornchurch, upon payment of a deposit of Two Guineas, which will be refunded in the case of a bona-fide Tender not subsequently drawn, upon acceptance of a Tender by the Council.

The Council will not be bound to accept the lowest or any Tender, and must necessarily have regard to the suitability of the goods offered for the purposes for which they are intended, the economy of running costs of plant, and the time quoted for delivery.

Tenders, sealed in the envelope provided, which shall bear no mark or indication of the identity of the person(s) tendering, shall be returned to the undersigned not later than Noon on MONDAY, 13th November, 1961.

P. L. COX, Clerk of the Council.

October, 1961.

CONTRACTS

WARWICKSHIRE COUNTY COUNCIL.

ROADS COMMITTEE.

WEEDON-ATHERSTONE-BROWNHILLS TRUNK ROAD, A.5.

SCHEME 1—ROYAL RED GATE INN TO WITHERLEY.
SCHEME 2—HIGHAM LANE TO LONG SHOOT.

TENDERS are invited for WIDENING the CARRIAGEWAY to 33ft. on the ABOVE SECTIONS of TRUNK ROAD, A.5.

The schemes are 1½ miles and ½ mile long, respectively, and separate Contracts will be let for each section. Apart from the general widening, kerbing and drainage, the Schemes include for the complete Reconstruction of the Carriageway in certain sections on crests where the present levels are to be reduced by amounts up to 6ft., and for the final rolled asphalt surfacing. The period fixed for completion is six months.

Conditions of Contract, Specification and Bills of Quantities may be obtained from DAVID WATSON, M.I.C.E., M.I.Mun. County Surveyor, Royal Red Gate Inn to Witherley, or "Tender for Widening—Higham Lane to Long Shoot," addressed to the County Surveyor by not later than MONDAY, 13th November, 1961.

The Council does not bind itself to accept the lowest or any Tender.

L. EDGAR STEPHENS, Clerk of the Council.

Shire Hall,
Warwick.

MIDDLESEX COUNTY COUNCIL.

MAIN DRAINAGE DEPARTMENT.

MOGDEN WORKS, ISLEWORTH.

SCRAPERS FOR SEDIMENTATION TANKS.

TENDERS invited for SUPPLY AND ERECTION of about 800 Yds. of PRIMARY SEDIMENTATION TANK SLUDGE SCRAPERS, with Electrical Equipment, for existing 95ft. dia. tanks. Specification and Form of Tender obtainable from Chief Engineer, Middlesex County Main Drainage Department, P.O. Box No. 7, Isleworth.

Sealed Tenders to be delivered to the undersigned by MONDAY, 20th NOVEMBER, 1961.

The County Council does not bind itself to accept the lowest or any Tender.

KENNETT GOODACRE, Clerk of the County Council.

Guildhall,
Westminster, S.W.1.

CITY OF BIRMINGHAM.

TO BUILDING CONTRACTORS.

CONTRACT 767/768/769—151 TWO- AND FOUR-STORY DWELLINGS—HENEAGE STREET, WILLIS STREET, VAUXHALL ROAD, ETC.

NECHELLS GREEN REDEVELOPMENT AREA.

The HOUSEBUILDING COMMITTEE invite TENDERS for the ERECTION OF THE ABOVE.

Bills of Quantities and Form of Tender will be forwarded on payment of £2 2s. at the Office of G. SHERRARD FIDLER, City Architect, Baskerville House, Civic Centre, Birmingham, 1, to whom all cheques should be made payable. Applications should be made by 24th OCTOBER, 1961. Conditions of Contract, which include the City Fair Wages and Conditions of Labour Clause, may be seen at the City Architect's Office during normal working hours.

The deposit will be returned on receipt of a bona-fide Tender, or on notification of inability to tender, together with the return of the documents not later than three days before the date for receipt of Tenders.

Tenders, enclosed in the envelope provided for the purpose, must be sealed and delivered to the Town Clerk's Office (Room No. B.31), Council House, Birmingham, 1, not later than 12 Noon on FRIDAY, the 24th November, 1961. Tenders received after that time will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

T. H. PARKINSON, Town Clerk.

Council House,
Birmingham, 1.

LEATHERHEAD URBAN DISTRICT COUNCIL.

TENDERS are invited for LAYING approx. 180 lin. yd. of SOIL RELIEF SEWERS in ASHTEAD, SURREY, including a Trust Bore under the Railway Line.

Tender documents, obtainable from the Engineer and Surveyor's Department, Red House, Leatherhead, should be returned by Noon, 6th NOVEMBER, 1961.

J. EDE, Clerk of the Council.

STRATFORD-ON-AVON RURAL DISTRICT COUNCIL.

NORTHERN AREA WATER SUPPLY.

CONTRACT NO. 10.

The Council invite TENDERS from experienced public works contractors having substantial previous experience of such works, for the LAYING of approx. 3,020 lin. yd. of 9in. dia., 17,000 lin. yd. of 6in. dia., 5,460 lin. yd. of 5in. dia., 11,560 lin. yd. of 4in. dia., and 13,400 lin. yd. of 3in. dia. SPUN-IRON WATER MAINS, together with Fittings, and other incidental works.

The Drawings can be inspected at, and copies of the Specification, Bills of Quantities and Form of Tender can be obtained from the Engineers, MESSRS. WILLCOX, RAIKES AND MARSHALL, 33 Great Charles Street, Birmingham, 3, on or after 30th October, 1961, on application, accompanied by a statement of previous similar works executed, and a cheque for Ten Guineas drawn in favour of the Council as a deposit which will be refunded after delivery of a bona-fide Tender and the return of all documents supplied.

Tenders, on the form supplied, are to be delivered to the undersigned not later than 12 o'clock Noon on MONDAY, 27th November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

Dated this 19th day of October, 1961.

D. W. NEWPORT, Clerk of the Council.

Council Offices,
11 Guild Street,
Stratford-on-Avon,
Warwickshire.

CONTRACTS

COUNTY BOROUGH OF NORTHAMPTON.
PROPOSED RECONSTRUCTION OF BEDFORD ROAD
RETAINING WALL (STAGE 2) AT BECKETT'S PARK.

Contractors wishing to TENDER for the RECONSTRUCTION of approx. 110 lin. yd. of the ABOVE STONE RETAINING WALL should apply to the Borough Engineer, Guildhall, Northampton, enclosing crossed cheque for £2 2s., payable to the Northampton Corporation. This sum will be returned if a bona-fide Tender is received by 10 a.m., TUESDAY, 7th November, 1961, and not subsequently withdrawn.

C. E. VIVIAN ROWE,
Town Clerk.

CITY AND COUNTY OF BRISTOL.

DEPARTMENT OF THE CITY ENGINEER AND
PLANNING OFFICER.

MAIN DRAINAGE FOUL WATER SCHEME—
CONTRACT NO. 17.GENERATING STATION AND SLUDGE DIGESTION
UNIT.

TENDERS invited from suitably experienced civil engineering contractors for CONSTRUCTION of GENERATING STATION AND SLUDGE DIGESTION Plant at the Corporation's proposed new Sewage Treatment Works off KING'S WESTON LANE, Avonmouth, Bristol.

Works include Heavy Piled Foundations, Excavations in Soft Alluvium, Construction of a Generating Station of 2,500-kVA capacity complete with Workshop, four Tanks of 2.4 million gallons capacity, together with Heat Exchanger Building with Heat Exchangers and Secondary Pumps, two Open Reinforced Concrete Secondary Sludge Digestion Tanks of 0.9 million gallons capacity, a city, and a Steel Tank and Gasholder of 56,000 cu. ft. capacity on, and including, a Piled R.C. Raft. Also included in the Contract will be Site Works, Roads, Footpaths, Water Mains, and Miscellaneous Pipeworks. Provision and Installation of Generating Plant for Contract.

Generating Station is subject of a separate Tender documents from City Engineer and Planning Officer, Cabot House, Denney Road, Bristol, 1, upon payment of £10 (by cheque payable to Bristol Corporation), refundable on receipt of bona-fide Tender.

Completed Tenders, in special envelope provided, to CITY ENGINEERING AND PLANNING OFFICER by 12 Noon, 27th November.

CITY OF MANCHESTER.

TENDERS are invited for the SUPPLY of approx. 1,000 MILD STEEL LITTER BINS.

Tender Forms, returnable by 10 a.m., 1st NOVEMBER, 1961, from the CITY SURVEYOR, Town Hall, Manchester, 2.

NESTON URBAN DISTRICT COUNCIL.

CLAYHILL HOUSING ESTATE, NESTON.

ROADS AND SEWERS.

TENDERS are invited on a Fixed-price Basis for the CONSTRUCTION OF ROADS AND SEWERS (Phase II), Clayhill Housing Estate, Neston, and associated Surface Water Sewer, Liverpool Road, Neston. Drawings may be inspected at the Office of the Engineer/Surveyor, Town Hall, Neston, Wirral, from whom Tender documents may be obtained.

Tenders should be forwarded in plain sealed envelopes endorsed "Roads and Sewers—Clayhill Housing Estate," to be received by the undersigned not later than 10 a.m. on FRIDAY, 17th November, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

F. H. D. HARTMAN,
Clerk of the Council.

Town Hall,
Neston, Wirral.

PRIVATE ESTATE — GROVE, BERKS.
(NR. WANTAGE).

TENDERS are invited for the CONSTRUCTION of approx. 1,760 lin. yd. of TARMACADAM ROADWAY, CONCRETE KERBING AND ASPHALT PAVING AND GRASS VEGGING, together with the CONSTRUCTION OF FOUL AND SURFACE WATER SEWERS, at THE GROVE ESTATE, GROVE, near WANTAGE, Berks. Specifications, Bills of Quantities, General Conditions of Contract and Form of Tender may be obtained on application to the Surveyor, FRANK OSBORNE, at the address below, any day during office hours on payment of £2 2s., which will be repaid after receipt of a bona-fide Tender.

Tenders, in plain envelopes, sealed and endorsed "Tender for Street Works," must be addressed and delivered to the above by not later than 12 Noon on MONDAY, 27th November, 1961.

The Surveyor does not bind himself to accept the lowest or any Tender.

FRANK OSBORNE,
Surveyor.

Bedfordshire House,
King Street,
Luton, Beds.

COMPANY producing quality aggregates and ready mixed concrete prepared to UNDERTAKE MANUFACTURE OF PRECAST CONCRETE PRODUCTS (sub-contract). Large area available, Monmouthshire. Write Box X.5010, "The Contract Journal."

REQUIRED. SUB-CONTRACT PLUMBERS on labour and materials basis for school contract in Berkshire.—Write Box X.4985, "The Contract Journal."

For Contracts received too late for
classification see page 1953

APPOINTMENTS VACANT

CAERNARVONSHIRE COUNTY COUNCIL.

ROADS AND BRIDGES DEPARTMENT.

APPLICATIONS invited for PERMANENTLY ESTABLISHED POST of PRINCIPAL ASSISTANT ENGINEER (Bridges), A.P.T. Grade V (£1,310-£1,480).

Applicants should be Corporate Members of Institution of Civil Engineers or Municipal Engineers, or hold equivalent qualifications, and have considerable experience in preparing and carrying out road and bridge improvement schemes.

Commencing salary according to qualifications and experience. Further particulars and Application Forms from CLERK OF COUNTY COUNCIL. Closing date: 28th OCTOBER.

APPOINTMENTS VACANT

SOMERSET COUNTY COUNCIL.

APPLICATIONS are invited for the POSTS of ENGINEERING ASSISTANT in Head Office at Taunton. Salary within the A.P.T. Grades III/IV (£960-£1,310), according to qualifications and experience. Essential user car allowance. Assisted purchase available.

Full particulars and forms obtainable from the undersigned.

Closing date: 30th OCTOBER, 1961.

J. H. H. WILKES,

County Surveyor,
Taunton.

COUNTY BOROUGH OF CROYDON.

£2M. FLOOD RELIEF PROGRAMME.

The FOLLOWING ADDITIONAL STAFF are REQUIRED in connection with these Schemes:

(a) Senior Assistant Engineer, A.P.T. V £1,355 to £1,525 p.a. as a Team Leader in the Civil Engineering Section.

(b) Assistant Engineer, A.P.T. III/IV (£1,005 to £1,355 p.a.).

Commencing salaries within the scales, according to qualifications and experience in the design and preparation of road and bridge schemes, and be capable of supervising the actual works, whether executed by contract or direct labour.

Five-day week of 38 hours. Established appointment. Pension scheme. Special house mortgage facilities.

Essential User Car Allowances paid with Grades A.P.T. IV and V.

Further details and Application Form from the BOROUGH ENGINEER, Town Hall, Croydon.

Closing date: 5th NOVEMBER.

MERIONETH COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING PERMANENT APPOINTMENTS in the County Surveyor's Department:

(a) Two Assistant Engineers—Salary Grade A.P.T. IV of the National Joint Council Scales.

(b) One Assistant Engineer—Salary Grade A.P.T. II of the National Joint Council Scales.

Applicants for appointments (a) should have had good experience in the design and preparation of road and bridge schemes, and be capable of supervising the actual works, whether executed by contract or direct labour.

Preference will be given to candidates who are Associated Members of the Institution of Civil Engineers and/or of the Institution of Municipal Engineers.

Applicants for appointment (b) should have had experience in the design and preparation of road and bridge schemes.

Preference will be given to candidates who are suitably qualified and have had previous experience under a County Authority.

Application to the Council's Application Forms, must be received by the COUNTY CLERK, County Offices, Peniarth, Dolgellau, by not later than MONDAY, 6th November, 1961.

BOROUGH OF CASTLEFORD.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

CLERK OF WORKS.

APPLICATIONS are invited for this APPOINTMENT at a salary in accordance with Grade A.P.T. I (£645-£815) of the National Scale of Salaries.

Candidates should have had experience in the supervision of contracts for civil engineering works, including the construction of roads and sewers, and should be capable of making reports, setting-out, levelling and measurement of such works.

N.J.C. Service Conditions: superannuable; terminable on either side on one month's notice; housing accommodation will be provided, if necessary, for successful married applicant.

Applications, on forms obtainable from me, should be returned not later than 9 a.m. on the 27th OCTOBER, 1961.

Canvassing disqualifies.

ERNEST HUTCHINSON,

Town Clerk.

Town Hall,
Castleford, Yorks.

THE URBAN DISTRICT COUNCIL OF HEXHAM.

APPOINTMENT OF ESTIMATING AND COSTING CLERK.

APPLICATIONS are invited for this APPOINTMENT in the Engineer and Surveyor's Department, at a salary in the range A.P.T. I or II (£645-£815 or £815-£960), according to qualifications and experience.

Candidates should have experience in similar work with a local authority or a builder or civil engineering contractor. Further particulars of the duties may be obtained from the Engineer and Surveyor. Preference will be given to candidates with the appropriate technical qualifications.

The appointment is subject to the Provisions of the Local Government Superannuation Acts and the National Scheme of Conditions of Service. Housing accommodation or facilities for house purchase will be available.

Applications, stating age, qualifications and experience, with the names of two persons to whom reference may be made, to be delivered to the ENGINEER AND SURVEYOR, Hexham House, Hexham, Northumberland, and not later than the 28th OCTOBER, 1961.

Canvassing, either directly or indirectly, will be a disqualification.

FRED. M. DAWSON,

Clerk of the Council.

BILLINGHAM URBAN DISTRICT COUNCIL.

APPOINTMENT OF ASSISTANT WORKS SUPERINTENDENT.

APPLICATIONS are invited for the POST of ASSISTANT WORKS SUPERINTENDENT in the Department of the Engineer and Surveyor, at a salary in accordance with Misc. Grade V of the National Scheme of Conditions of Service (£685-£760).

Residence within Urban District is essential, and housing accommodation will be provided.

Applicants should have a current driving licence. Duties to include supervision and construction of engineering capital works, including sewers and new roads, and also highway maintenance.

Applications, together with the names of two referees, must be delivered to the undersigned not later than 6th NOVEMBER, 1961.

Canvassing, either directly or indirectly, will be a disqualification.

FRED. M. DAWSON,

Clerk of the Council.

Council Offices,
Haverton Hill,
Billingham.

APPOINTMENTS VACANT

NORTHAMPTONSHIRE COUNTY COUNCIL.

DISTRICT SURVEYOR—GRADE A.P.T. III (£960-£1,140).

Applicants for the ABOVE APPOINTMENT should have had experience in the maintenance and construction of highways, the supervision and execution of roadworks by direct labour and by contract, and should be conversant with the general administration of a County Highways Division.

Candidates should have passed Parts I and II of the Institution of Civil Engineers Examination or the Testamur Examination of the Institution of Municipal Engineers.

The Officer appointed will be required to provide and maintain a motor car, for which he will receive a travelling allowance in accordance with the Council's Scales.

Further details of the appointment, together with Forms of Application and Conditions of Service, may be obtained from the County Surveyor, County Offices, Guildhall Road, Northampton, to whom applications should be returned by MONDAY, 30th October, 1961.

J. ALAN TURNER,
Clerk of the County Council.

County Hall,
Northampton.

BOROUGH OF TOTTENHAM.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

The FOLLOWING POSITION on the Established Staff provides varied and interesting work in a municipal borough of 116,000 population:

Senior Civil Engineering Assistant, Grade IV (£1,185 to £1,355 p.a.).

Applicants will be offered to the post according to experience and ability.

Applicants should hold a first professional qualification or an appropriate University Degree.

Five-day week; staff restaurant facilities; part removal expenses reimbursed.

Application Forms, obtainable from the Borough Engineer and Surveyor (S), Town Hall, Tottenham, N.15, should be returned to him not later than the 6th NOVEMBER, 1961.

M. LINDSAY TAYLOR,
Town Clerk.

BOROUGH OF CHELTENHAM.

BOROUGH AND WATER ENGINEER'S DEPARTMENT.

APPLICATIONS are invited for the APPOINTMENT of SENIOR WATER ENGINEERING ASSISTANT, Grade A.P.T. IV.

Applicants must be Associate Members of the Institution of Civil Engineers and/or Institution of Water Engineers, and have extensive experience of waterworks design and construction.

The appointment is subject to the N.J.C. Conditions of Service, and housing accommodation, together with 50 per cent. approved removal expenses, will be offered to the successful candidate, if necessary. The Council operates a five-day week.

Suitably endorsed applications, with full details of experience, together with the names of two referees, are to reach W. E. BIRD, A.M.I.C.E., M.I.Mun.E., A.M.I.W.E., Borough and Water Engineer, P.O. Box 12, Municipal Offices, Cheltenham, not later than MONDAY, 6th November, 1961.

F. D. LITTLEWOOD,
Town Clerk.

BOROUGH OF CHELTENHAM.

BOROUGH AND WATER ENGINEER'S DEPARTMENT.

APPLICATIONS are invited for the APPOINTMENT of TWO ENGINEERING ASSISTANTS, Grade A.P.T. II.

Applicants must have passed the Intermediate Examination of the Institution of Municipal Engineers, or Part I of the Institution of Civil Engineers, and should have a good general experience in municipal engineering.

The appointments are subject to the N.J.C. Conditions of Service, and housing accommodation, together with 50 per cent. of approved removal expenses, will be offered to the successful candidates, if necessary. The Council operates a five-day week.

Suitably endorsed applications, with full details of experience, together with the names of two referees, are to reach W. E. BIRD, A.M.I.C.E., M.I.Mun.E., A.M.I.W.E., Borough and Water Engineer, P.O. Box 12, Municipal Offices, Cheltenham, not later than MONDAY, 6th November, 1961.

F. D. LITTLEWOOD,
Town Clerk.

BUCKS. WATER BOARD.

APPOINTMENT OF CIVIL ENGINEERING DRAUGHTSMAN.

APPLICATIONS are invited from keen CIVIL ENGINEERING DRAUGHTSMEN to fill a vacancy at the Board's Head Office in Aylesbury. The post is permanent and subject to superannuation; the salary will be in accordance with A.P.T. III (£815-£960); commencing salary according to age and experience.

Candidates should have had experience of the distribution side of a water undertaking, and must possess initiative. Facilities for further study are available, and suitable day release classes may be attended.

Applications, setting out the candidate's experience to date, together with the names of two persons to whom reference may be made, should be addressed to the ENGINEER AND MANAGER, Byron Road, Aylesbury, as soon as possible.

FROME VALLEY MAIN DRAINAGE COMMITTEE.

APPOINTMENT OF JUNIOR ENGINEER OR DRAUGHTSMAN.

APPLICATIONS are invited for the APPOINTMENT of a JUNIOR ENGINEER or DRAUGHTSMAN in connection with the laying of approx. 6½ miles of trunk sewer from Stapleton Road in the City of Bristol to an existing Sewage Disposal Works at Winterbourne in the Sodbury Rural District.

The person appointed will be required to assist the Resident Engineer in setting-out, preparing details of work completed for monthly valuation, and the checking of contractors' statements.

The appointment will extend over the duration of the contract (being a nominal period of 33 months). The contract has now been in progress for approx. three months.

The salary offered is £700 p.a. plus £150 p.a. subsistence allowance.

Applications, with the names of two referees, must be received by the undersigned not later than FRIDAY, 3rd November, 1961.

H. WHEWY,
Clerk to the Committee.

Council Offices,
Chipping Sodbury,
Bristol.

APPOINTMENTS VACANT

COUNTY BOROUGH OF BURY.

APPLICATIONS are invited for the FOLLOWING APPOINTMENTS:

- (a) Senior Assistant Architect, A.P.T. IV (£1,140-£1,310).
(b) Assistant Architects (two), A.P.T. I or II or III (£645-£815 or £815-£960 or £960-£1,140).
(c) Senior Assistant Planning Officer, A.P.T. IV (£1,140-£1,310).

The appointments are permanent, and the commencing salary will be fixed according to qualifications and experience.

Applicants for appointments (a) should be experienced in dealing with contracts for large public works, and must be professionally qualified.
Applicants for appointment (b) should have general experience in the design and construction of public buildings, and success in Part I or Part II of the R.I.B.A. Final or Special Examination, or other equivalent, at one of the recognised Schools of Architecture will entitle the applicant to appointment on A.P.T. III.
Applicants for appointment (c) should be experienced in either development control or redevelopment and research projects, and should be professionally qualified.

Consideration will be given to the provision of housing accommodation.

Applications, stating age, qualifications, experience, present and previous appointments and salary, together with the names of two referees, must reach me by the 6th NOVEMBER, 1961.

EDWARD S. SMITH, Town Clerk.

Town Hall,
Bury,
12th October, 1961.

COUNTY BOROUGH OF ROCHDALE.

WATERWORKS DEPARTMENT.

SENIOR ENGINEERING ASSISTANT.

APPLICATIONS are invited for this APPOINTMENT on Grade A.P.T. V.

Appropriately qualified candidates preferably should be experienced in waterworks construction and/or day-to-day maintenance of a waterworks undertaking. Relationship to any member or senior official of the Council must be disclosed. Appointment subject to medical examination. Canvassing will disqualify. Applications and names of three referees to Water Engineer, Townhead, Rochdale, Lancs., by 14th NOVEMBER, 1961.

K. B. MOORE, Town Clerk.

Town Hall,
Rochdale.

PERSHORE RURAL DISTRICT COUNCIL.

BIRMINGHAM-BRISTOL MOTORWAY—STRENSHAM SERVICE AREA.

APPOINTMENT OF RESIDENT ENGINEER.

The Council invite APPLICATIONS for the POST of RESIDENT ENGINEER on the construction of both temporary and permanent sewage disposal works and works of water supply incorporating the construction of a pumping station and a reinforced concrete reservoir, together with incidental works.

It is anticipated that the work will extend over a period of 15 to 18 months, and the salary offered is £1,500 p.a.

The successful applicant will work under the general direction of the Council's Consulting Engineers, MESSRS. A. H. S. WATERS AND PARTNERS, and must have had considerable experience on works of the nature described.

Applications, endorsed "Resident Engineer," stating age, experience and qualifications, accompanied by the names of two persons to whom reference may be made, must be forwarded to the undersigned so as to reach him not later than 26th OCTOBER, 1961.

W. G. TRAPP, Clerk of the Council.

Council Offices,
Pershore, Worcs.

EAST SHROPSHIRE WATER BOARD.

WORKS OF WATER SUPPLY.

APPOINTMENT OF RESIDENT ENGINEER.

The Board invite APPLICATIONS for the ABOVE APPOINTMENT at a salary of up to £1,500 p.a., according to age, qualifications and experience, together with a car allowance for essential journeys on or between the sites, on the National Scale up to a maximum of 1,199 c.c. engine capacity.

The appointment will be a temporary one, and will be subject to three months' notice on either side.

The successful applicant will be responsible for the supervision of several forthcoming contracts of water supply, the aggregate value of which will be approx. £200,000. As the volume of work increases, the Board will consider the appointment of an Assistant who will work under the direction of the successful applicant who, in turn, will work under the general direction of the Board's Consulting Engineers, A. H. S. WATERS AND PARTNERS, of Birmingham.

The successful applicant should have had experience in the supervision of the laying and jointing of water mains of every description, and in the construction of service reservoirs in reinforced concrete.

Applications, stating age and experience, giving the names of three referees, must reach the undersigned by 14th NOVEMBER, 1961.

GEORGE THOMAS, Clerk of the Board.

The Grove,
Shifnal, Salop.
16th October, 1961.

SOUTH DERBYSHIRE WATER BOARD.

ENGINEERING ASSISTANT.

APPLICATIONS are invited for the POST of ENGINEERING ASSISTANT (Eng. Asst. III), at a salary within the Grade of A.P.T. IV (£1,140-£1,310).

The person appointed must be a Corporate Member of the Institution of Civil Engineers, or be otherwise suitably qualified, and must have had general experience in the design and construction of civil engineering works.

The successful applicant will be required to work at the Board's Head Office at Derby.

The Board are not in a position to provide housing accommodation.

The appointment is supernumerary and subject to the National Joint Council's Scheme of Conditions of Service, to a medical examination, and to one month's notice on either side.

Applications, stating age, qualifications, experience, present and previous appointments held, together with the names of two referees, should be submitted to the Engineer and General Manager, 1 Tenant Street, Derby, not later than 2nd NOVEMBER, 1961.

N. S. FISHER, Clerk to the Board.

APPOINTMENTS VACANT

COUNTY BOROUGH OF EAST HAM.

APPLICATIONS are invited for the FOLLOWING TEMPORARY APPOINTMENT of approx. 18 months on a contract at East Ham. Applicants must have had experience in the construction of modern steel-framed buildings:

Clerk of Works (A.P.T. II—salary up to £1,000 p.a.).

Forms of Application, returnable by 3rd NOVEMBER, 1961, from the TOWN CLERK, Town Hall, East Ham, E.6.

COUNTY BOROUGH OF EAST HAM.

SENIOR ASSISTANT ENGINEER (GENERAL)—A.P.T. IV (£1,185-£1,355).

Salary in excess of the minimum may be paid, according to qualifications and experience. A subsistence allowance may be granted over a reasonable period to the person appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and Application Forms, returnable by 3rd NOVEMBER, 1961, from the TOWN CLERK, Town Hall, East Ham, E.6.

BOROUGH OF WORKSOP.

APPOINTMENTS IN THE BOROUGH ENGINEER'S DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING APPOINTMENTS:

Assistant Engineer—Salary A.P.T. Grade IV (£1,140-£1,310).

Applicants must hold either an engineering degree, the Testamur of the Institution of Municipal Engineers, or be qualified for Associate Membership of the Institution of Civil Engineers, and have at least five years' experience, including pupillage.

Architectural Assistant—Salary A.P.T. Grade IV (£1,140-£1,310).
Applicants must be Chartered or Registered Architects.

The posts are supernumerary, and the successful applicants will be required to pass satisfactorily a medical examination.

Housing accommodation will be provided, and removal expenses will be paid, if required by successful married applicants.

Applications, giving qualifications, experience, and accompanied by the names of two referees, must reach the undersigned not later than Noon on FRIDAY, the 3rd November, 1961.

RUSSELL C. PHAROAH, Town Clerk.

Town Hall,
Worksop.

12th October, 1961.

AGENT/ENGINEER REQUIRED for medium-sized but expanding company near S.E. Coast, to control group of small to medium contracts. Good opportunity for keen cost-conscious man. Car provided.—Apply Contracts Manager, THE WINGHAM ENGINEERING CO., LTD., Wingham, Canterbury, Kent.

TECHNICAL REPRESENTATIVE REQUIRED, aged 25-35, with wide experience of civil engineering work.—Please apply in first instance by letter, giving details of education and professional experience, and submit the names of two referees, to THE CONSOLIDATED PNEUMATIC TOOL CO., LTD., 471 Chester Road, Manchester, 16.

HUSSEY, EGAN AND PICKMERE, LTD.

A number of vacancies are available for SENIOR and JUNIOR ENGINEERS on contract sites in England and Wales. Permanent posts with attractive prospects. Apply, with details of education, training and experience, to

HUSSEY, EGAN AND PICKMERE, LTD., 24 Calthorpe Road, Edgbaston, Birmingham, 15. Telephone: Edgbaston 3661.

VACANCIES for experienced REINFORCED CONCRETE AGENTS, ENGINEERS, FOREMEN, CHARGEHANDS AND SHUTTERING CARPENTERS, etc. Some opportunities civil engineering and general building. Labour-only sub-contracts available, especially high-quality formwork. Areas: West London, Winchester and South Coast.—Applications to CAMPBELL AND MCGILL, LTD., Winchester.

COST AND BONSUSING SURVEYOR REQUIRED in head office of flooring contractors, S.E. London. Good salary plus non-contributory pension scheme. Write, stating age, experience, and salary required, to Box V.4932, "The Contract Journal."

AN excellent opportunity exists for two ambitious but good BUILDING and CIVIL ENGINEERING TYPES as Personal Assistants to Directors. Duties will include acting generally as Contract Managers. Age approx. 30/40.—Apply JOHN FINLAN, LTD., Halebank, Widnes, Lancs.

CIVIL ENGINEER

REQUIRED for certificate and planning duties on large overseas civil engineering project. Applicants must have wide experience of large-scale projects with contractors.—Write full particulars of career to:

BOX V.4682, "THE CONTRACT JOURNAL."

TARMAC REQUIRE AGENTS, SUB-AGENTS and SENIOR ENGINEERS for medium and large-sized civil engineering contracts in England and Wales. Applicants should have previous contracting experience in heavy industrial work, dams, motorways, or general public works. Basic salary commensurate with experience; bonus and superannuation schemes in operation. Applications, which should give full details of previous experience, will be treated in strict confidence, and should be addressed to the Personnel Officer, TARMAC CIVIL ENGINEERING, LTD., Eppingham, Wetherham.

REPRESENTATIVE, experienced in the sale of contractors' plant, to take over an existing connection in Northants, Beds. and North Herts. Good salary, profits bonus, and expenses. A.55 supplied. Mainly distributors for Tarmac Diggers and other popular plant.—Apply NEALE, WRIGHT AND CO., LTD., Cublington, Leamington Spa.

FIRST-CLASS AGENT REQUIRED for large reinforced concrete superstructure contract in Kent area. A good salary is offered to the right man. Bonus etc. can be discussed at interview.—Apply in confidence, stating age, experience, and previous employers, to Box 1081, c/o Murray and Phelan, Ltd., Columbia House, Aldwych, W.C.2.

APPOINTMENTS VACANT

CLASSIFIED ADVERTISEMENT

RATES:

Classification	First Four Lines or Less	Each Additional Line
APPOINTMENTS VACANT	12/-	2/6
APPOINTMENTS WANTED	7/6	1/6

WORK REQUIRED, BUSINESS OPPORTUNITIES, BUSINESSES FOR SALE, DIVING, FINANCE, PROFESSIONAL SERVICES, AGENCIES, HORTICULTURAL PROPERTY, SALE BY AUCTION, PLANT AND MISCELLANEOUS 14/- 3/-

BOX NO. 1/- EXTRA.

CIVIL ENGINEER REQUIRED, with previous site experience, to train for a head office appointment as an Estimator. The position is permanent, and carries a substantial salary and bonus. Entry into the company's superannuation scheme will be arranged at the end of 12 months' service.—Applicants should write, stating age, qualifications, experience to date, etc., to Chief Estimator, THE MITCHELL CONSTRUCTION CO., LTD., Wharf Works, Peterborough, where applications will be treated in the strictest confidence.

EXPERIENCED CIVIL ENGINEERING GENERAL FOREMAN

REQUIRED for large contract overseas.—Write particulars to:

BOX V.4771, "THE CONTRACT JOURNAL."

PLANT INSPECTOR, to be based in Derby, who will be required to visit sites throughout the country. Must have sound knowledge of all types of mechanical plant, and be able to prepare reports. Transport will be provided. Interviews could be arranged in London or Derby.—Apply in writing, with full details of experience, age, and salary required, to Plant Manager, GEE, WALKER AND SLATER, LTD., Severn Works, Mansfield Road, Derby.

AMBITIOUS REPRESENTATIVE REQUIRED, with comprehensive knowledge of excavators and diesel engines. Preference given to applicant with experience of visiting users of earthmoving equipment in London and Home Counties.
Write Box V.4978, "The Contract Journal."

ENGINEERS

Preferably qualified, are invited to apply for the position of SENIOR AGENT on a heavy civil engineering contract abroad. Considerable experience with contractors and wide administrative experience are essential. Please give full details of career.

WRITE BOX V.4770, "THE CONTRACT JOURNAL."

EXPERIENCED SERVICE ENGINEER REQUIRED for agricultural and industrial equipment, London and Home Counties area. Age 30-40. Clean driving licence essential. Preferably domiciled London area. Expanding organisation.—Apply Secretary, STEEL FABRICATORS (CARDIFF), LTD., Pengam Road, Cardiff, Tel. 37212.

CARPENTERS (Shuttering) and BRICKLAYERS. Civil engineering site at Hinkley Point. Rate and subsistence as W.R.A. incentive scheme. Good hostel. Long hours.—Write Agent, TAYLOR WOODROW CONSTRUCTION, LTD., Hinkley Point Power Station, near Bridgwater, Somerset.

BIRMINGHAM-PRESTON MOTORWAY—SOUTH CHESHIRE SECTION

SIR LINDSAY PARKINSON AND CO., LTD., invite applications for the following positions on the above contract:

(a) SENIOR SUB-AGENTS—Ref. LVH/15
Applicants for this position should have a minimum of eight years' good all-round experience on heavy construction work with civil engineering contractors and should preferably be qualified engineers. They should already have reached a position of some responsibility on the direct control of site operations on contracts. Salary up to £2,000 per annum, plus car, according to age and experience.

(b) SECTION ENGINEERS—Ref. LVH/7

(c) ASSISTANT FIELD ENGINEERS—Ref. LVH/8
Applicants should be qualified engineers with sufficient field experience with civil engineering contractors to be familiar with the duties and responsibilities of the positions. Salaries—Section Engineers up to £1,900 per annum inclusive; Assistant Engineers up to £1,550 per annum inclusive, according to age and experience.

(d) MEASUREMENT ENGINEERS—Ref. LVH/10
Men required for these positions should have had recent experience in similar positions with a contractor's organisation. Alternatively, qualified engineers with four to five years' field experience with contractors, who wish to widen their outlook prior to taking positions of greater control on contracts, would receive favourable consideration. Salary up to £1,800 per annum inclusive, according to age and experience.

These positions carry prospects of promotion for men showing drive and initiative. The company also operates a superannuation scheme.—Applications, in writing, quoting reference number of positions, and giving full details of age, qualifications, experience, should be addressed to:

The General Manager,

Civil Engineering Department,

SIR LINDSAY PARKINSON AND CO., LTD.,

6 Lambeth Road, St. George's Circus, London, S.E.1.

ESTIMATOR REQUIRED for progressive post with expanding company. With general civil engineering experience, and preferably with keen interest in marine work. Able to work on own initiative.—Please write, giving details of experience, and salary required, to G. TATE AND SON, LTD., Finwell House, 26 Finsbury Square, London, E.C.2. All applications will be treated in confidence.

APPOINTMENTS VACANT

SALES MANAGER REQUIRED by Massey-Ferguson distributors. Applicants must be thoroughly conversant with sales control and able to run a sales department entirely. Salary £1,100. Car. Excellent prospects for ambitious and progressive person. Write, giving full details, to Box V.4987, "The Contract Journal."

A YOUNG, progressive firm in the Home Counties **REQUIRE a SALES REPRESENTATIVE**. Selling experience of excavators essential. Excellent prospects for ambitious and progressive applicant. — Write, giving full details, to Box V.4988, "The Contract Journal."

CIVIL ENGINEERING
GENERAL FOREMAN

A position with prospects of promotion in a rapidly expanding company is offered to a suitable applicant who is prepared to take responsibility on large contracts. A commensurate salary will be paid, together with participation in bonus and pension schemes.—Write, with details, to:

BOX A.B.559, "THE CONTRACT JOURNAL."

BUILDING and civil engineering contractors in Birmingham area **REQUIRE COMPANY SECRETARY/ACCOUNTANT** to supervise and take full control of medium-sized group of companies. Commencing salary £1,250.—Write, giving full details, to Box V.4958, "The Contract Journal."

ENGINEER/AGENT REQUIRED immediately for tunnel contract in London area. Only applicants experienced in this type of work, and the necessary responsibility, need apply. This appointment carries a good salary.—Write Box V.4960, "The Contract Journal."

HEAVY ENGINEERS REQUIRE DEPARTMENTAL SHOP MANAGER for fabrication department. With wide experience jobbing work, structural steel and tankwork, and welding in all metals. House available.—FRED. WATKINS (ENGINEERING), LTD., Coleford, Glos.

HOWARD FARROW

require
CIVIL ENGINEERS

with previous site experience, for a variety of interesting contracts in London and the South. The appointments will be permanent and pensionable, and opportunities will arise for promotion to Agent.

Please write with brief details in the first instance, or 'phone:

J. W. WILSON

HOWARD FARROW, LTD.,
Building and Civil Engineering Contractors,
Highfield Road, London, N.W.11.
Meadway 3232

APPOINTMENTS VACANT

TECHNICAL PLANNING ASSISTANT WANTED for building and civil engineering contractors in North West. Duties will involve taking-off, requisitioning and progressing of bulk materials and sub-contractors. Applicants should be fully conversant with building construction and should be experienced in planning in order to assist in formulating realistic and workable contract programmes. The position provides good prospects for the right man in a new and expanding company. Bonus and pension schemes in operation.—Write, stating details of age, education, qualifications and experience, to Box V.4971, "The Contract Journal."

SITE CLERK REQUIRED for interesting contract work. Must be fully conversant with W.R.A., dayworks accounts and costing procedure. Permanency and promotion for right man.—Write, giving full details, to Box V.4989, "The Contract Journal."

REPRESENTATIVE WANTED by progressive London plant hire company. Must be able to promote hire and sales. Car provided.—Write, stating age, experience, and salary, required, to Box V.4973, "The Contract Journal."

WANTED for large quarrying concern in the Midlands, **ASSISTANT ENGINEER** with full knowledge of quarry plants and design. Excellent prospects. Applicants should be in the 30-40 age group. Apply in writing, giving full details, to Box V.4972, "The Contract Journal."

TECHNICAL REPRESENTATIVE REQUIRED for S.E. England. To sell construction and crushing equipment. Age 25-35. An engineering background is essential, and some knowledge of construction equipment is desirable. The successful applicant will be based on the company's Westminster office, and car will be provided. This is an interesting job, with exceptional opportunities for advancement and good salary for a man with initiative.—Written applications to Box V.5020, "The Contract Journal."

EDITORIAL ASSISTANT

FOR HYDRO-ELECTRIC JOURNAL

AN Editorial Assistant is required for a monthly journal specialising in world hydro-electric development. He should hold engineering qualifications, preferably in civil or hydraulic engineering or in corresponding laboratory work. Some practical experience in the hydro-electric or some related field would be an asset. Previous journalistic experience is not a requirement but an aptitude for technical writing is essential, and some knowledge of languages would be useful. The right candidate would be trained with a view to the eventual editorship.

BOX No. V4995, "THE CONTRACT JOURNAL"

ESTIMATOR

For Civil Engineering Work required by **MARTIN COWLEY LTD** due to considerable expansion of work. This is a permanent appointment at Head Office and provides an excellent opportunity to a man with experience, preferably aged 30 to 40.

Write to:
THE SECRETARY,
Clay Cross, Derbyshire.

APPOINTMENTS VACANT

NATIONAL sectional building company **REQUIRE** London-based **REPRESENTATIVE** with established contacts in the building trade. Salary, commission, and car provided.—Write Box V.4961, "The Contract Journal."

CIVIL ENGINEER/CONTRACTS MANAGER, for Birmingham area. Must be fully conversant setting-out, use of instruments, estimating, running contracts from initial to final. Good salary and permanency. Write, giving full details of age, etc., to Box V.5011, "The Contract Journal."

SENIOR and JUNIOR SITE ENGINEERS REQUIRED for building and civil engineering contracts in the London area. Must be experienced in the use of surveying instruments and controlling engineering staff and construction.—Applications, giving details of age, experience, and salary required, to the Chief Structural Engineer, **TERSONS, LTD.**, Dollis Park, London, N.3.

CIVIL ENGINEERS

Preferably qualified, **REQUIRED** by civil engineering contractors engaged in the construction of impounding reservoirs, sea defence works, large diameter pipe lines, trunk sewers, tunnels and other works of heavy construction, for site works on contracts mainly in the Midlands and North of England. Applicants should have had some previous site experience and be of necessity mobile. Appointments carry attractive salaries and offer considerable scope for advancement in an expanding organisation.—Apply, giving details of age, qualifications and experience, to:

LEHANE, MACKENZIE AND SHAND, LTD.
Matlock, Derbyshire.

CASE. — SENIOR and JUNIOR EXECUTIVES **WANTED** for export sales office of U.K. company manufacturing tractors and construction machinery. Experience of construction machinery industry an advantage; also previous knowledge of sales correspondence, preparation of quotations. Some knowledge of languages would be an advantage, as would previous experience of having worked overseas.—Write, giving fullest particulars in chronological sequence, and salary required, to J. I. CASE CO., LTD., Mill Road, West Drayton.

CUBITTS. — DESIGN ENGINEERS. Applications are invited from Engineers, preferably qualified, and with some years' experience of heavy civil engineering works, for positions in London head office involving design of temporary works and contracts planning. The positions are permanent and offer good conditions of employment, together with varied and interesting work, and good prospects.—Please send full details to Personnel Manager (N4228), **HOLLAND & HANSEN AND CUBITTS (GREAT BRITAIN), LTD.**, 1 Queen Anne's Gate, London, S.W.1.

DORMAN LONG

(Bridge & Engineering) LTD

BRIDGE AND CONTRACTING DEPARTMENT,
38/40 BUTE STREET, LUTON, BEDS.

have vacancies on the Design Staff
for three

GRADUATE
ENGINEERS

who are interested in Bridge Design
and Construction.

Write for an interview to:
The Chief Draughtsman,
Telephone: Luton 6666, Ext. 21.

In accordance with the Company's expansion programme,

J. I. CASE COMPANY LTD

will appoint more area representatives.

Applications are therefore invited from men, preferably aged between 25 and 30, with some basic knowledge of the earthmoving industry and who are ambitious for a successful selling career.

Selling industrial tractors is hard work but successful applicants will be suitably trained in a vigorous and extremely happy company which is growing rapidly. The terms of employment are attractive with plenty of opportunities for promotion. *A letter of application, with a brief summary of your career should be sent to:*

THE SALES MANAGER, J. I. CASE COMPANY LTD
MILL ROAD, WEST DRAYTON, MIDDLESEX

EVERY APPLICATION WILL BE TREATED IN ABSOLUTE CONFIDENCE



APPOINTMENTS VACANT

ASSISTANT CIVIL ENGINEER REQUIRED for site supervision of contracts for the construction of marine works, piers, wharves, ancillary works in West Africa. Qualifications exempting from Parts 1 and 2 of the I.C.E. Examination are desirable. Terms of 12-15 months, renewable by mutual agreement. Salary and leave terms, free furnished accommodation and medical attention, return air passage, and kit allowance, etc.—Write, giving full details of experience, stating age, and whether married or single, to SIERRA LEONE DEVELOPMENT CO., Dept. C.E.6, City Gate House, Finsbury Square, London, E.C.2.

SHELLABEAR PRICE, LTD.

REQUIRE AGENT/PROJECT MANAGER for their large complex earthworks sub-contract on the South Cheshire Motorway. The salary and other benefits will be by negotiation and commensurate with the responsibilities involved.—Applications, which will be treated in the strictest confidence, giving full details of previous experience, should be addressed to:

Managing Director,
SHELLABEAR PRICE, LTD.,
Apex House, 100, The Quadrant, London, W.1.

New Zealand Avenue, Walton-on-Thames, Surrey.

SENIOR CIVIL ENGINEER REQUIRED on large road contract near Glasgow. Must be experienced in road construction on large scale, and a capable organiser. For suitable man, salary and conditions can be arranged.—Write Box V.5022, "The Contract Journal."

CIVIL ENGINEER, with degree or A.M.I.C.E., age 28-32, REQUIRED in head office of well-established firm of Gunite specialists. Permanent and progressive post for the right man. Must have broad civil engineering background, including site experience with contractors. Varied and unique experience offered in surveys for, and preparation of, remedial schemes, tendering, planning and organisation of contracts. Excellent prospects for man with ability and drive. Pension scheme.—Apply in confidence, stating age, education, experience, and present salary, to T. Whitley Moran, M.I.C.E., 5 Old Hall Street, Liverpool, 3.

SITE AGENT REQUIRED for major road contract. Approx. £150,000. The post offered is permanent, and the applicant will be expected to join the company's existing pension scheme. Car provided. Salary according to experience. Assistance given in obtaining housing accommodation.—Write for application forms to SOIL ENGINEERING AND CONTRACTING CO., LTD., Ramsden House, Station Road, Marlow, Bucks.

AGENTS

REQUIRED for the promotion of sales of tubular products in connection with the building industry. Existing contacts with site agents, contract managers and their departments would be advantageous. Inquiries are invited from independent representatives and companies in all parts of the country, including Kent, S.W. England, S. Wales and the Midlands.

WRITE BOX C1144,

c/o Hanway House, Clark's Place, E.C.2.

AGENT/ENGINEERS REQUIRED for a progressive, medium-sized civil engineering contractors operating in the South West. House agent should have varied experience of medium-sized contracts and a proven record with reputable contractors.—Write full details of experience and present salary to Box V.5009, "The Contract Journal."

AGENT REQUIRED for large civil engineering contract in Yorkshire. Must be fully experienced in heavy earthmoving, roads and sewers. Good salary and conditions.—Reply, with full details of career, to Personnel Officer, M. J. GLEESON (CONTRACTORS) LTD., Hareton House, London, North Cheam, Surrey. (Ref. F.1.)

REINFORCED CONCRETE CONTRACTORS

REQUIRE ASSISTANT ENGINEER as trainee for outside work based on London. Very good opportunity open to suitable applicant.—Write, with full particulars, to:

BOX V.4963, "THE CONTRACT JOURNAL."

ENGINEER REQUIRED by civil engineering contractors operating in Scotland and Northern Ireland. The company regard this as an important appointment, carrying a substantial salary, and only senior men with civil engineering experience need apply. Applications, with details of experience, and references, will be treated as strictly confidential.—Write Box V.5021, "The Contract Journal."

ASSISTANT CIVIL ENGINEER or SURVEYOR REQUIRED for Stewian Dam, Ffestiniog pumped storage project. Blaenau Ffestiniog, North Wales. Salary scale £900-£1,100 p.a. plus cost of living allowance. Accommodation available in staff quarters if required.—Apply, giving particulars of past experience, to THE CEMENTATION CO., LTD., Civil Engineering Division, Bentley Works, Doncaster.

SENIOR ESTIMATOR

REQUIRED to estimate precast and in situ concrete structures. Applicants should have had experience of estimating for general building work as well as concrete construction. Housing can be made available to the selected candidate a top salary will be paid, and the position is pensionable.—Applications should be made to:

The Chief Estimator,
THE LONDON FERRO-CONCRETE CO., LTD.,
Maxted Close, Hemel Hempstead, Herts.

PROGRESSIVE civil engineering contractors of medium size REQUIRE a FIRST-CLASS ENGINEER/AGENT to take full charge of contracts up to the value of £500,000. Only men with very wide experience of roads, sewers and sewerage works, with proven evidence, need apply. Must be able to carry a contract from tendering stages to final certificate. Work generally confined to London and the Home Counties. Car provided, and possible directorship after trial period.—Write, giving full particulars of training, and previous experience, stating age, and salary required, to Box V.5025, "The Contract Journal."

APPOINTMENTS VACANT

WELL-KNOWN civil engineering contractor REQUIRES SENIOR ENGINEERS, over 25 years, for appointments in the Midlands and Home Counties. Applicants must have good general duties experience and be able to take charge. The positions offer excellent opportunities and will become permanent. First-class salaries, with pension scheme. Details of experience and qualifications should accompany applications. Write to Box V.5024, "The Contract Journal."

PLANT ENGINEER

Young apprentice-trained and qualified ENGINEER REQUIRED as Assistant to Director of large company concerned with specialised plant and general engineering. Experience should preferably include heavy vehicles and lifting appliances. This is an excellent opportunity for an energetic young engineer to acquire very wide technical and administrative experience leading to a senior managerial post. Adequate, progressive remuneration.—Fullest details of qualifications and experience, in chronological order, to:

BOX V.5017, "THE CONTRACT JOURNAL."

GENERAL and ASSISTANT GENERAL FOREMEN REQUIRED for C.E. and building contracts, London area.—Apply in writing only, stating previous experience, to C. J. SIMS, LTD., 2 Victoria Street, S.W.1.

DRAUGHTSMAN REQUIRED by the Wether Group of Companies in their stone and concrete division at Croydon. Sound knowledge of building construction required; work entails detailing, cladding and masonry, and site measuring.—Apply in writing to COOPER WETTER and CO., LTD., Suffolk House, Croydon, Surrey.

THOMAS LOWE AND SONS, LTD.

Burton-upon-Trent. REQUIRE a BONUS SURVEYOR for all types of contracts in the Burton area. Position is permanent and pensionable. Assistance with accommodation will be considered for the right man.—Write, giving details of previous experience, age, and stating salary required, to:

Contracts Manager,
THOMAS LOWE AND SONS, LTD.,
Curzon Street, Burton-upon-Trent.

ENGINEER REQUIRED by an expanding civil engineering company in Bedfordshire. First-class opportunity for keen, ambitious man. Experience required on road and sewer construction.—Write, giving details of past and present position, age, salary required, etc., to Box V.4911, "The Contract Journal."

AGENT REQUIRED for roadworks contracts in South West Area. Must be experienced in setting-out measurements and control of labour.—Full details to: ROADS RECONSTRUCTION (CONTRACTING), LTD., Garston Road, Frome, Somerset. Tel.: Frome 3371.

JUNIOR ENGINEERS, age about 25, REQUIRED by well-known and rapidly expanding company engaged in bridge, sewerage, tunnel, heavy foundation and such works. Excellent experience offered. Good salary and pension scheme. Details of experience and qualifications required.—Write to Box V.5023, "The Contract Journal."

PLANT DEVELOPMENT ENGINEERS—LONDON AND SCOTLAND

RICHARD COSTAIN, LTD. REQUIRE Two PLANT DEVELOPMENT ENGINEERS—one to work at head office in London and one in Scotland. The company is organised to provide a full service to meet the requirements of contracts throughout the world, including development work, field management and repair and maintenance programmes. The appointments available offer progressive careers with opportunities to gain sound experience in all these aspects of plant engineering, both in U.K. and overseas. Applications are invited from engineers, preferably aged 28-35, planning and estimating for both light and heavy civil engineering contracts of up to £1m. in value. Operate from Warwick office. Attractive salary, pension/bonus scheme, staff restaurant. A permanent and progressive appointment.—Write full personal and experience details to:

Personnel Manager,
RICHARD COSTAIN, LTD.,
111 Westminster Bridge Road, London, S.E.1.
Telephone: WATERLOO 4977.

MIDLANDS REPRESENTATIVE REQUIRED for fast growing London firm selling and hiring non-mechanical plant, structural steel, etc. Contacts with builders, civil engineering contractors an advantage. Must be able to work on own initiative, as this is a new appointment. Attractive salary; car provided. Please write details, age, experience, etc., to Box V.5029, "The Contract Journal."

TURRIFF CONSTRUCTION CORPORATION, LTD.

REQUIRE a CIVIL ENGINEERING ESTIMATOR to take over the responsibility of tendering for all types of civil engineering contracts. The successful applicant will have a background which includes a technical qualification, four-five years' site experience as agent or site engineer, followed by at least four years' planning and estimating for both light and heavy civil engineering contracts of up to £1m. in value. Operate from Warwick office. Attractive salary, pension/bonus scheme, staff restaurant. A permanent and progressive appointment.—Write full personal and experience details to:

Group Personnel Manager,
TURRIFF CONSTRUCTION CORPORATION, LTD.,
Budbrooke Road, Warwick.

W. AND C. FRENCH, LTD. REQUIRE an ASSISTANT SURVEYOR experienced in the measurement of small local building works, including preparation of final accounts.—Apply in writing, stating previous experience, and salary required, to Personnel Manager, 50 Epping New Road, Buckhurst Hill, Essex.

PLANT SUPERINTENDENT REQUIRED by civil engineering contractor, for important contract in Scotland. A man of good personality and ability to administer the efficient management of contractors' plant and electrical equipment required.—Write details of experience, and salary required, to Box C.J.968 L.P.E., 60-62 St. Martin's Lane, W.C.2.

APPOINTMENTS WANTED

ABLE ENGINEER/EXECUTIVE SEEKS POSITION or PARTNERSHIP in sand and gravel or allied industry, 16 years' experience.

Write Box W.4936, "The Contract Journal."

PLANT ENGINEER MANAGER, A.M.I. Plant E. Age 40, 20 years' experience at home and overseas with all types heavy civil engineering, masonry, American and English. Complete control of office, stores, workshops, men and equipment. REQUIRES POST with progressive firm of civil engineers at home or abroad.

Write Box W.4956, "The Contract Journal."

SENIOR CIVIL ENGINEERING EXECUTIVE SEEKS EARLY APPOINTMENT as CONTRACTS MANAGER or AREA MANAGER with established company. Very extensive experience in these positions with major concerns covering a wide field of contracting, organisation and administration. Take complete control all departments. Highest references.

Write Box W.4974, "The Contract Journal."

AREA MANAGER, age 56. Positions held: Engineer in Charge, Agent, Co-Director, also R.E. and Surveyor to consulting engineers and estate companies. 35 years' experience. Home: Cheltenham. REQUIRES POSITION in Gloucestershire area.

Write Box W.4982, "The Contract Journal."

SURVEYOR AND CIVIL ENGINEERING CONTRACTORS' AGENT OFFERS SERVICES—Setting out, Measurements and Monthly Certificates, to one or two firms having small contracts in Gloucestershire justifying a full-time agent. Home base: Cheltenham.

Write Box W.4983, "The Contract Journal."

EXECUTIVE, with company manufacturing range of contractors' plant, SEEKS POST with similar company who are keen to increase their present range and output. All-round engineering, sales and administrative experience, in addition to plant hire. Excellent contacts at home and abroad. Free to consider post in any part of British Isles.

Write Box W.4984, "The Contract Journal."

AGENT/CONTRACTS MANAGER, age 35, SEEKS NEW POSITION offering prospects of advancement, 14 years' experience of roads, sewers, main-laying and reinforced concrete structures. Available 6-8 weeks.—Write Box W.5001, "The Contract Journal."

CIVIL ENGINEER, qualified, top-level executive with wide experience DESIRES APPOINTMENT. Specialist negotiator of claims and final accounts.

Write Box W.4992, "The Contract Journal."

PLANT OFFICE MANAGER SEEKS APPOINTMENT. Doncaster York area. Others considered. Free mid-October. Experienced all records, wages and P.A.Y.E.

Write Box W.4919, "The Contract Journal."

CHIEF BUYER, experienced purchasing all materials, plant, etc., building, civil engineering and refinery projects home and overseas. REQUIRES POSITION responsibility authority with busy company.

Write Box W.4795, "The Contract Journal."

BUILDING/LAND SURVEYOR SEEKS POST, South Coast area. Experience surveying, levelling, preparation plans; specialist setting-out, supervision, roads, sewers, houses, sub-contracts, accounts, etc.

Write Box W.5026, "The Contract Journal."

For Advertisements received too late for classification see page 1953

WORK REQUIRED

BULK EARTHMOVING, direct contract or sub-contract. Also BULLDOZERS and SCRAPERS for HIRE.—FRANK R. WALPOLE, LTD., 126 Wing Road, Leighton Buzzard, Beds. Leighton Buzzard 3351.

HIGHWAY CONTRACTORS, LTD. invite inquiries for large or small EARTHMOVING CONTRACTS. Direct or sub-contracts undertaken. Specialists in Roadbuilding, Playing Fields and Site Excavation with modern fleet of Caterpillar DW21s, D9s, D8s, D7s, Traxcavator 977, 955s, 933s, Roadie TS14s, and Ruston Excavators.—Contact Head Office: HIGHWAY CONTRACTORS, LTD., 146A Bath Street, Ilkeston, Derby, or phone Ilkeston 4376/7.

WANTED, HIRE or CONTRACT WORK for modern fleet of Caterpillar 631 Motor Scrapers, 25 D8s, 15 cu. yd. Rear Dump Euclids and 38RB Face-shovel.—Apply: BRODERICK AND RYAN, LTD., 421 Nottingham Road, Ilkeston, Derby. Tel. 4381/2/3.

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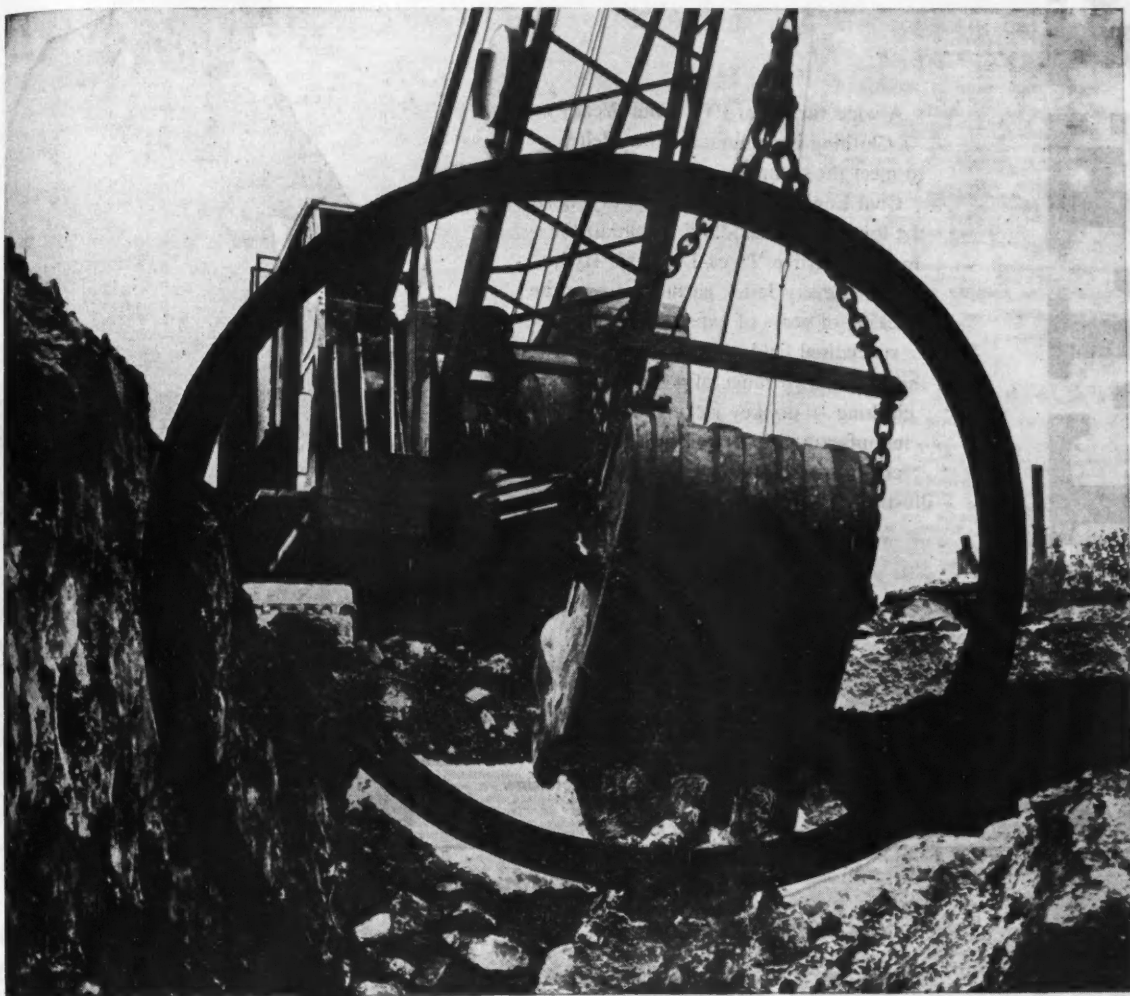
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Tenders should be submitted in a plain sealed envelope endorsed "Tender for Road and Sewer Works—Ryton-on-Dunsmore," so as to reach the undersigned not later than 12 Noon on FRIDAY, 17th November, 1961.

The successful contractor will be required to enter into a Contract and Bond for the due performance and fulfilment of the Contract.

The Council does not bind themselves to accept the lowest or any Tender.

H. A. WILDE,
Clerk of the Council.

Council Offices,
14 Warwick Street,
Rugby.
16th October, 1961.

RURAL DISTRICT COUNCIL OF CHANCTONBURY.

REGISTRATION OF SELECTED CONTRACTORS.

Applications are invited from the FOLLOWING CLASSES OF FIRMS for registration by the Council on a proposed List of Selected Contractors who would, when accepted for registration, be given an opportunity to TENDER in appropriate cases for any future Council projects of the categories described:

- (1) Builders for house construction;
- (2) Builders for house maintenance;
- (3) Civil engineering contractors capable of carrying out village sewerage and/or sewage disposal schemes;
- (4) Civil engineering contractors capable of the estate development on housing sites;
- (5) Small general contractors for minor engineering works;
- (6) Decorators and painting contractors for external painting of Council dwellings.

Applications, with full details of general experience and schemes carried out, should be submitted to the undersigned not later than 30th NOVEMBER, 1961.

H. N. BEST,
Clerk of the Council.

Council Offices,
Storrington,
Pulborough.
16th October, 1961.

QUANTITY SURVEYORS REQUIRED for building and civil engineering contracts. They should be fully conversant with all site duties.—Please write, giving full details, to Personnel Department (Ref. R.H.), MESSRS. J. MURPHY AND SONS, LTD., 43 Charteris Road, London, N.4.

ROAD SURFACING SUPERVISOR REQUIRED. London area. Experience on all types of machine and hand laying essential. Knowledge of foundation work an advantage. Good prospects. —Apply AMALGAMATED ASPHALTE COMPANIES, LTD., London Roads Dept., Pear Tree Wharf, Horn Lane, Greenwich, S.E.10.

WANTED. Two or three JUNIOR ENGINEERS for setting-out and measurement for major contracts in the West of Scotland and Northern Ireland.—Write Box V.5027, "The Contract Journal."

ADMINISTRATIVE COUNTY OF LEICESTER.

Builders and contractors desirous of being considered for inclusion in a selected list of contractors to TENDER on a Firm-price Basis for the ERECTION of a TEACHING BLOCK at KIRBY MUXLOE COUNTY SCHOOL to submit names to COUNTY ARCHITECT, 123 London Road, Leicester, by 30th OCTOBER, 1961.

Bills of Quantities available 7th November, 1961. Tenders to be returned not later than 12 Noon on MONDAY, 4th December, 1961.

BOROUGH OF ASHTON-UNDER-LYNE.

CENTRAL PURCHASING.

TENDERS are invited for the SUPPLY of MOTOR SPIRIT, FUEL OIL, PARAFFIN and LUBRICATING OILS.

Applications for particulars of requirements, etc., enclosing stamped and addressed envelope, to be sent to me.

Tenders, in plain sealed envelopes endorsed "Tenders for Motor Fuel, etc.," to be received by me not later than SATURDAY, 18th November, 1961.

The Council does not bind itself to accept the lowest or any Tender.

Dated this 20th day of October, 1961.

G. A. MALONE,
Town Clerk.

Town Hall,
Ashton-under-Lyne,
Lancashire.

CITY OF BATH.

CITY ENGINEER'S DEPARTMENT.

TENDERS are invited for the SUPPLY of ONE MECHANICAL ROAD SWEEPING MACHINE AND TWO REFUSE COLLECTION VEHICLES. The successful Tenderer for the supply of the Refuse Collection Vehicles will be required to take two existing moving floor Refuse Collection Vehicles, on Bedford Chassis, in part exchange.

Forms of Tender and Specification may be obtained on application to the City Engineer, Guildhall, Bath, and Tenders must be returned by 1st. NOVEMBER, 1961.

JARED E. DIXON,
Town Clerk.

13th October, 1961.

STAINES URBAN DISTRICT COUNCIL.

ERECTION OF 20 GARAGES ON VARIOUS SITES WITHIN THE URBAN DISTRICT.

TENDERS are invited for the ERECTION of 20 GARAGES to be constructed within the curtilages of existing Council houses.

Plans, Specifications and Forms of Tender may be obtained from the office of the Engineer and Surveyor, 240 London Road, Staines, upon payment of a deposit of £2 2s., which will be returned upon receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

Sealed Tenders endorsed "Individual Garages," must reach the undersigned not later than 5 p.m. on THURSDAY the 9th November, 1961.

The Council does not bind itself to accept the lowest or any Tender.

F. ENTWISTLE,
Clerk of the Council.

"Elmsleigh,"
73 High Street,
Staines, Middlesex.

ESTIMATOR/SURVEYOR REQUIRED. Able to take-off, prepare and price bills of quantities for general and specialised concrete housing, multi-storey flats and industrial buildings.—Particulars and salary required, in confidence, to J. A. Parks, REEMA CONSTRUCTION, LTD., Milford Manor, Salisbury.

FOREMAN. Good all-round civil engineering man. REQUIRED for work in Nigeria with an established company. Preferably of single status, tradesman, under 45, of good health, character and intelligence. Experience and initiative essential. Prospect of several years with attractive leave periods on full pay and all air fares paid. References required later.—Applications in confidence, giving details of experience, previous posts, age, health and domestic responsibilities, to HARBOUR AND GENERAL WORKS, LTD., 173 St. Stephen's House, Victoria Embankment, Westminster, S.W.1.

COUNTY BOROUGH OF BARROW-IN-FURNESS.

TRANSPORT COMMITTEE.

EXTENSION TO TRANSPORT DEPOT.

TENDERS are invited for the ERECTION of the ABOVE BUILDING on a site behind the existing Depot in HINDPOOL ROAD, Barrow-in-Furness.

Form of Tender and Specified Bills of Quantities may be obtained at the office of the Borough Engineer and Surveyor, Mr. J. N. FLITCROFT, A.M.I.C.E., Town Hall, Barrow-in-Furness, where plans of the said works may be inspected.

Application for Tender Documents must be accompanied by a deposit of £2 2s. which is returnable on receipt of a bona-fide Tender or on return of all documents within seven days of their receipt by the contractor.

Sealed Tenders endorsed "Transport Depot Extension," are to be delivered to the office of the undersigned not later than 12 Noon on MONDAY, 20th November, 1961.

The Corporation does not undertake to accept the lowest or any Tender.

LAWRENCE ALLEN,
Town Clerk.

Town Hall,
Barrow-in-Furness.

BOROUGH OF BRIDGWATER.

HAMP STREET WIDENING.

TENDERS are invited for the DEMOLITION and REBUILDING of GARDEN BUILDINGS and Walls. Bulk Excavation and the Construction of 730 sq. yd. of Tarmacadam Carriageway and Footpath, together with Gully Connections and ancillary work.

Full particulars and tender documents may be obtained from the Borough Engineer, Town Hall, Bridgwater, on payment of Two Guineas deposit. Closing date for receipt of Tenders, 6th NOVEMBER, 1961.

The Council does not bind itself to accept the lowest or any Tender.

J. L. TURNER,
Town Clerk.

CHELTENHAM AND GLOUCESTER JOINT WATER BOARD.

NEW PUMPHOUSE AND INTAKE—TEWKESBURY.

The Cheltenham and Gloucester Joint Water Board invite TENDERS for the CONSTRUCTION of a NEW PUMPHOUSE and RIVER INTAKE at MYTHE WATERWORKS, Tewkesbury.

The work comprises Excavation in Soft Strata in Cotterdam, the Reinforced Concrete Work for the Intake and Pumphouse for three low lift pumps and three high lift pumps, General Building Work for the R.C. framed Pumphouse Superstructure and Amenities Block, and the Laying of Associated Water Mains and Drains. The Consulting Engineers and the design of the works are L. G. MOUCEL AND PARTNERS. Contract documents and Drawings may be obtained from the Joint Engineer, Municipal Offices, Cheltenham, on payment of a deposit of £10 by cheque made payable to the Board. The deposit will be returned if a bona-fide Tender is submitted and not subsequently withdrawn.

Tenders should be sent in a plain sealed envelope endorsed "Tender for New Pumphouse and Intake—Tewkesbury," addressed to the CLERK, Cheltenham and Gloucester Joint Water Board, P.O. Box No. 12, Municipal Offices, Cheltenham, to arrive not later than Midday on TUESDAY, 28th November, 1961.

The Board does not bind itself to accept the lowest or any Tender.

PURCHASING ASSISTANT REQUIRED by civil engineering contractors, West London. Must have at least two years' experience and be capable of working from bills and drawings.—Write, giving details and salary required, to Box V.5026, "The Contract Journal."

GENERAL FOREMAN REQUIRED for construction of sewage disposal works in the Eastern Counties. Write, giving details of age, experience, and salary required, to Civil Engineering Dept., MARSHALL ANDREW AND CO., LTD., St. Andrew's House, Broadway, St. James' Park, London, S.W.1.

SCOTTISH firm of surveyors and contractors REQUIRE the services of an AGENT to act for them in the London area. He must be fully conversant with the making-up of estimates and the carrying out of surveys. All replies will be treated in confidence. Please state salary required.—Write Box V.5030, "The Contract Journal."

BUILDERS (Industrial) REQUIRE the services of a GENERAL FOREMAN, with the opportunity of early promotion to Contracts Manager. The advertisers are a Scottish concern with an established connection in the construction steelwork and building fields, who have hitherto mainly sub-contracted their site building work in the London area. They have offices and works in the Ealing area, and it is their intention to inaugurate their own building division. The post will obviously be progressive, and will provide ample scope for a man of skill and enthusiasm. It is pensionable, and a company car will be provided. Preferred age, 35-45.—Write in confidence, giving age, full details of experience, and previous posts (in date order), present remuneration, and indication of salary expected, to 1204 Wm. Porteous and Co., Glasgow.

MARTIN COWLEY, LTD., REQUIRE experienced SITE CLERK/CASHIERS for building and civil engineering contracts. Good conditions and prospects. Write: 112 Jermyn Street, London, S.W.1.

FIRST-CLASS AGENT with sound experience, particularly on deep excavations and reinforced concrete. REQUIRED for large sewerage scheme in South of England.—Please write in first instance, stating age, salary required, and details of experience, to Box V.5034, "The Contract Journal."

REQUIRED, ASSISTANT to Manager of progressive and expanding plant hire company. Must have good knowledge of plant hire, and preferably with practical mechanical experience.—Write experience, and salary required, to Box V.5033, "The Contract Journal."

ESTIMATOR REQUIRED for head office staff, aged 25-30. Capable of estimating for all types of road and sewer works, including preparing bills of quantities when necessary. Some previous experience essential.—Applications, stating age, experience, and salary required, to SYDNEY GREEN AND SONS (CONTRACTORS), LTD., Highlands Farm, Henley-on-Thames, Oxon.

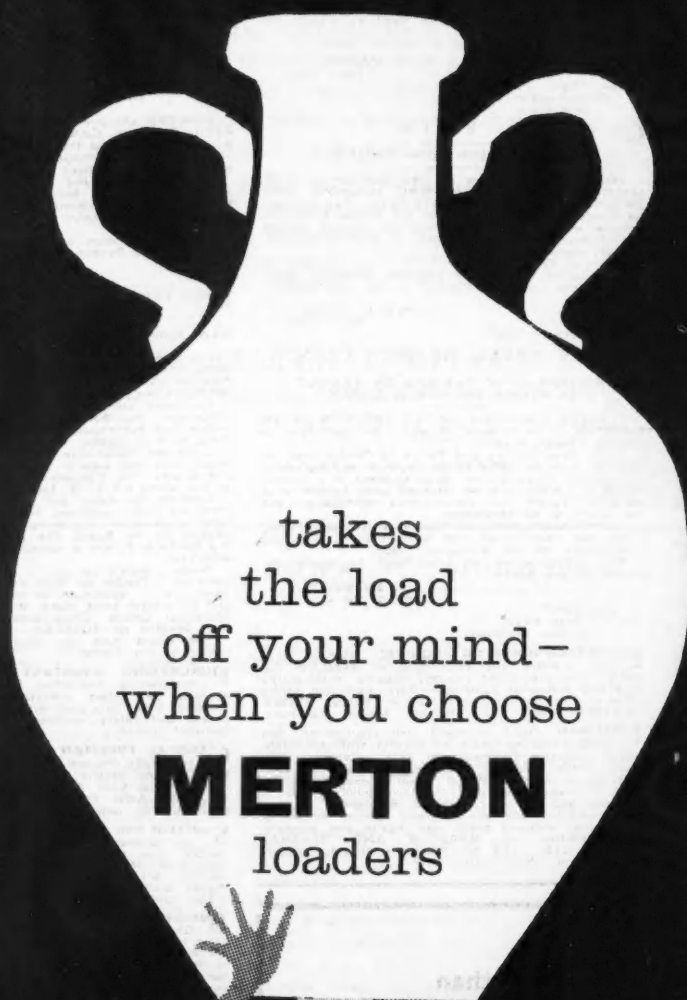
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LOOKING AHEAD

THE probability is that by 1980 Britain's national income will have risen by over £11,000 million, and her population will have grown by 5 million. These were two of the basic assumptions upon which the Junior Liaison Committee of Architects, Quantity Surveyors and Builders recently probed the likely evolution and trends in building during the next 20 years. It was forecast conservatively that by 1980 the amount of construction work would increase by two thirds although the labour force would rise by only 5 per cent. Of course, the basic assumptions and the conclusions were challenged and, in the result, things may well turn out differently. But the very exercise of looking ahead proved both stimulating and fruitful. Many interesting problems were discussed.

The question was posed for example, as to whether the architectural profession was adequately organised to cope with the likely increase in work. Reference was made to the effect of Britain's joining the Common Market and the demand for British building services from overseas nations such as Africa. At home, it was suggested that tendering procedure would change and that the negotiated system would supersede competitive tendering. This, it was pointed out, would require a new cost advice service to both client and architect.

The cardinal importance of good management and leadership in meeting the challenge ahead was stressed and amid much plain speaking it was stated that the conduct of building work is currently bedeviled by far too much woolly thinking and low grade direction.

There were some interesting comments on the future relationship between the professions and the contractor. It was suggested that the independent role of the contractor would continue but that he should have greater freedom in applying resources and techniques of construction to obtain maximum efficiency. But the design of buildings in the future would require more group and team working, the teams to contain architects, engineers and quantity surveyors.

This same problem of the integration of the architectural and mechanical design was discussed at a recent international conference on heating, ventilating and air conditioning organised by the Institution of Heating and Ventilating Engineers. It was forcefully pointed out by one speaker that while there was a joint committee of architects, quantity surveyors and builders, there was no machinery through which all the members of the building team could meet together and discuss their problems.

There is a story, and it is a true one, about the radio sets of the 1920s, the front of which always looked like the setting sun. A certain manufacturer was trying to improve the outward appearance of his sets but found he could make no progress until the engineer responsible for the works modified his layout so that the various controls appeared in more aesthetically pleasing positions.

In the case of building, the opposite problem has emerged. The mechanical services now bulk so large in building costs, amounting sometimes to 40 per cent. or more of the total, that their economic design can no longer be considered in isolation from the architectural design. For the latter can have a profound effect upon the cost of the mechanical services. The effect of window size on the cost of air conditioning systems is an obvious example. So is the provision of clear runs for duct work. Yet these two factors alone, were largely responsible for a more than 50 per cent. difference in the cost of the air conditioning systems in two otherwise similar buildings in America. In a parallel case in Holland the choice of floor construction had fundamental effect on the design and cost of the air conditioning system.

At the HEVAC Conference, therefore, it was argued that the present sequential approach to building design must be abandoned in favour of systems of organisation whereby the various specialists involved in building can work together from the start to produce a balanced design that is properly evaluated technologically. Otherwise the technological specialists are called in too late to adopt a really scientific approach. And, as one speaker stated, it is in the very initial stages of the design that the six figure mistakes are made.

An Economist Comments . . .

CENTRAL WAGES POLICY—HELP OR HINDRANCE?

THE Chancellor has gone a stage further in setting up his Central Planning Authority. In a letter to the Federation of British Industries, the British Employers' Confederation, the Association of British Chambers of Commerce, the National Union of Manufacturers and the Trades Union Congress, he has put down very broadly, what he has in mind.

In essence, he envisages a National Economic Development Council with himself as chairman and the President of the Board of Trade and the Minister of Labour as members. The other members would be drawn mainly from the trade unions and from the management side of private and nationalised industry.

The Council would have no easy job since its function would be to examine and correlate plans and prospects of the private and public sectors and to assist the Government in its task of keeping claims on the country's resources within bounds.

Evidently the time has arrived for individual industries to consider, in some detail, how they are likely to be affected. It is being taken for granted that wage negotiations would fall within the purview of such a body, or one allied to it and this is the aspect that I propose to deal with this week.

A Complex Industry

First, I think, it is necessary to sketch the background against which the present Working Rules for the building industry have grown up. Sometimes they are criticised for being too complicated. But construction is a complicated industry. In its widest sense, it is a collection of industries, bits of industries, and professional organisations.

The work is not concentrated in industrial areas, like, for example, the heavy engineering industry or the ship-building industry; it is scattered throughout the country over thousands of parishes. Some jobs are in heavily built-up areas, like Central London, others in remote rural areas; some on flat sites, others in rocky, uneven or even swampy areas.

The firms, numbering almost 100,000, vary in size from the great national contractors, employing thousands of men, and taking contracts all over the country, to the local jobbing builder, often a single craftsman, who has started on his own and who seldom works beyond his immediate locality. Although mechanical appliances are increasingly common, construction remains essentially a craft industry and labour costs form an important part of the whole.

Working Rule Origins

It was in such a complex environment that the existing agreements grew up. The first known working rules for wages and conditions in the industry came into being as a result of the increasing powers of the trade unions. Employers found that it was to their advantage if they banded together and agreed on certain basic wages and conditions. For one thing, it prevented one employer being played off against another; for another, it was an advantage to a builder, when he was tendering for a job, to know roughly what he would have to pay for labour and what his competitors were likely to pay also.

From this it followed that although the unions aimed on securing the "minimum wage," this wage was always regarded by the employers as a "standard" (or maximum) rate. This aspect is not without significance today.

The first agreements were local in character. There is evidence that as far back as 1886 the standard trade union

rates were paid with remarkable uniformity within a large number of industrial towns. There were, however, considerable discrepancies between wage rates paid in different places, and even in places quite close to one another. These differences were due in part to variations in the cost of living (which the grading system subsequently recognised); to the demand for labour in relation to its supply; and to local custom.

In most cases, up to the 1914-18 war, agreements on wage rates, allowances, working conditions, overtime arrangements, method of discharge and the like, were reached separately for individual occupations. There was no formal means of co-ordinating them.

In 1918 both sides of the industry, influenced by the anomalies then existing, entered into a comprehensive wages agreement, this agreement, while recognising the extreme diversities of the building industry, provided for the maintenance of the existing local agreements so far as they did not conflict with the new agreements and contained other provisions to ensure a co-ordinated application of wage changes.

In 1919, the Employers' Federation and the unions adopted the principle of national uniformity of hours of work, although variations based on local conditions were allowed to continue. In 1920 it was agreed to regulate wages and other conditions on a national basis, with due allowances for local conditions. This agreement resulted in the formulation of a National Wages and Conditions Council for the Building Industry. This had the function of regulating wages and hours, grading towns and negotiating allowances which were capable of national adjustment.

With minor modifications, it remained in operation until 1932, although in the interval the title of National Wages and Conditions Council was changed to its present form, namely the National Joint Council for the Building Industry. In 1932 an agreement was reached that is still the basis of the machinery of negotiation of the building industry in England and Wales. It enunciated that wages and conditions should be determined on a national basis but made elaborate provision (e.g., in the form of regional and local working rules) to ensure that proper regard was paid to local circumstances.

Contemporary Conditions

The numerous provisions for variations at national, regional and local levels contained in the present rule books are, in effect, a measure of the complexity of the industry. If proof is needed of the value of these arrangements, it is to be found in the large measure of industrial peace that the industry has enjoyed.

Certainly there is nothing to suggest that the industry is becoming less complex; quite the reverse, in fact. Mechanisation, prefabrication, new processes and so on are all the time creating new problems of industrial relations. To these must be added those stemming from the Welfare State and Full Employment—the ever increasing demand for improved amenities and working conditions, the often excessive turnover of labour and so on.

The Alternatives

It is against this background that any move towards a government-controlled centralised wages policy must be judged. Would it undermine the machinery already in existence for individual industries? However elaborate the building machinery may be, the fact remains that it works in practice. Or would it merely represent a further logical step in an evolution that had local agreements as its starting point? Without full knowledge of what the Government has in mind, it is not possible

to do more than pose the alternatives and consider each in turn.

On the question of upsetting the present arrangements, I think that it is fair to comment that the best judges of what is needed for a particular industry are those who have an intimate knowledge of that industry. No slide-rule in Whitehall can take the place of the building contractor and the building operative facing up to their problems around a table and trying to reach a solution. One does not need to have been present at any of the industry's formal joint negotiation meetings to appreciate that these men really know their business. Hard words may be exchanged from time to time; but there is a persistent undercurrent of objectivity that ensures that in the ultimate it is the well-being of the industry that predominates.

Is it certain that a superimposed wage fixing authority could reach an agreement, even in the broadest terms, that could be translated right through the building wage structure—the wages for apprentices and women workers, for example—or that took account of the exceptional, but varying, increase in man-output that is taking place just now? Not to mention civil engineering work, which, at the present time at any rate, has separate working rules.

There is, of course, another side to the coin. The present system is not without its critics. Many would argue, with some justification, that wage bargaining, industry by industry, has given way to a game of "follow my leader"; the leader, as often as not, being a nationalised industry acting at the behest of the Government.

If this is so, joint negotiating machinery has lost much of its significance; all that is required is an intelligent interpretation of the production and cost of living statistics—and the Government should be as capable of that as anyone.

But how would the Unions fare in such a set up? Their primary and continuing function is to obtain better wages and conditions for their members. Would they gradually fold up? If so, the Government's plan to introduce some sort of order at the highest level could lead to what would amount to little more than industrial anarchy on the shop floors and on the sites.

The Industry Must Decide

Everything depends on what the Government has in mind, if anything. And by "if anything" I imply no disrespect, the Government is feeling its way. Its mind is not necessarily made up; it is open to be conditioned by the views it hears expressed. One thing stands out. The contracting industry must make up its mind where it wants to go; and, even more important, it must make quite sure that the Government understands fully what this means.

LECTURES ON MODERN ARCHITECTURE

"Modern Architecture: Yesterday, Today and Tomorrow" is the title of a series of three lectures, the first arranged by the Royal Institute of British Architects, which is to be held during November at 66 Portland Place, London, W.1.

The lectures will be given by Mr. R. Furneaux Jordan, A.R.I.B.A., A.A.Dipl., past principal of the Architectural Association School of Architecture and professor of architecture at Leeds University. Starting at 6 p.m. on November 15, 22 and 29, the lectures will cover: Prelude, the emergence of modern architecture; modern architecture abroad; and modern architecture at home. Tickets, at 6s. for the series, are available from the Secretary, R.I.B.A.

APATHY AND INERTIA IN INDUSTRY TODAY

**"For Too Many People It Has Been Too Good," says
C.P.A. President**

THE non-curtailement of the road programme was the one bright spot in the Chancellor's recent statement on our economic difficulties, said Mr. H. Spragg, C.B.E., president of the Contractors' Plant Association, at the Association's annual dinner in London last week.

Even so, he was critical of the size of the programme which, he thought, fell far short of what was necessary and what commonsense and a realisation of the position demanded.

"The tremendous increase in the number of vehicles on our roads year by year is frightening," he said, "but as Sir William Glanville rightly points out in his report, the number of vehicles is one thing, but the use they are put to—that's traffic. Calculations have shown that by 1970 the traffic will be more than double what it is today. The cost to industry of all this congestion and chaos is estimated to be over £300m. a year, which all goes on to the cost of our goods. If this could be substantially reduced it would be a tremendous help in that competitive field abroad."

Earlier in his speech, Mr. Spragg reminded his audience that he had now been in office for 21 years.

"When I first took office," he said, "I was dismayed that some people did not regard plant hirers as exactly the salt of the earth, but rather looked upon them with doubt and suspicion. I felt, therefore, that my most important task was to eradicate such impressions and ideas. I felt that if the plant hiring industry was to achieve any standing, it must inspire and gain the confidence of the people with whom we had to work. To do this it meant that they must at all times provide the help and the service required. They must ensure that the terms and conditions, the rates of hire and the working conditions were always fair and reasonable."

"I have consistently worked with that aim and object in view for the past 21 years. I have at all times tried to assist, help, co-operate and collaborate, particularly with the Federation of Civil Engineering Contractors who represent our principal customers."

"I think we can look back with a feeling of satisfaction that we have achieved a considerable part of our hopes. The cordial relationship that exists today between our organisation and those with whom we deal is evidence of this."

Turning to the building industry the president said, "I have hoped that we could be of greater assistance to the not so big builder."

"The very large firms are generally civil engineering contractors as well, and we deal with them in a dual capacity, but I would like to see the plain, straightforward builder finding it an advantage to utilise the services of plant hiring, and we on our part should try to provide the services and equipment which will be helpful and beneficial to them. I hope that there will be closer co-operation and collaboration between our Association and the building organisations."

Economic Crises

Mr. Spragg continued: "Last year when we met, the Chancellor had imposed what he described as just a gentle little squeeze.

This year we meet in the midst of a full-blown economic crisis. And so it goes on—we hardly seem to go for a couple of years without another economic crisis; it seems to be a continual process of Stop, Go—Stop, Go.

"But is it really very surprising when one considers the apathy and inertia in industry today? We have heard a lot of skits lately from various quarters about a slogan that one of our political parties used at the last election 'You've never had it so good!' But the real truth is that for too many people it has been too good, and

of living but are only interested in buying the products they want, delivered on schedule, in the quality and quantity they want and at a price that appeals."

Common Market

Reference to the Common Market and its effect on British plant companies was made by Mr. C. H. Grist, president of the Federation of Manufacturers of Contractors' Plant.

"I understand," he said, "that the organisation of plant hire is not so well developed there as it is here and in the United States. We have the opportunity there of spearheading our products and getting them familiarised and they could be of great help to the manufacturers and there I think there is a great future of exploratory possibility before the Association."

Mr. Grist recalled that the C.P.A. was formed three months ahead of his own Federation and both emerged out of the times when it was necessary to find common solutions to problems imposed by a central authority of the Government.

Of the problems that faced both bodies today, he said that he did not think that these could easily be resolved by saying that they related alone to effort or that remuneration was disproportionate to contribution.

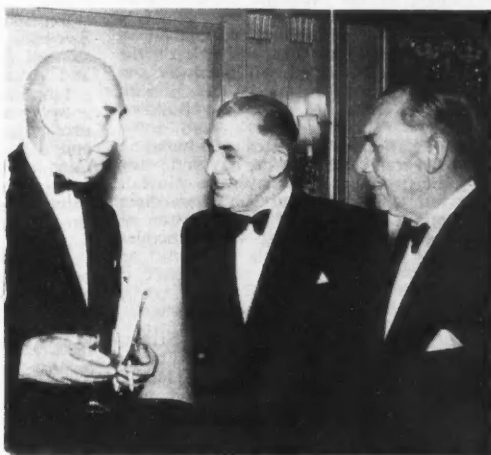
"If we could get an aggregate view of the tremendous changes that are taking place in the world, we would not think in terms of the local or immediate issue but rather settle for the fact that we are in the midst of profound and deep revolution. The facets of these changes are so vast that it is almost impossible to grasp the significance of their impact on us."

"We have before us two immediate things in prospect, the common market and the prospective Government planning. I believe that the Federations during the war and the aftermath of the war rendered a great service to the authorities. There is a future even greater for them in both these developing situations. The common market doesn't solve anything by virtue of our becoming members, it only provokes a great and stronger challenge which will be of far-reaching seriousness to us all and of itself will provoke a response corresponding to movement to greater things for this country."

The toast of "The Association" was made by Mr. W. G. Mitchell, C.B.E., president of the Federation of Civil Engineering Contractors.

"The recent Government measures will undoubtedly bring about a temporary restriction of expansion in the work of the civil engineering industry, and this in turn

(Concluded on next page)



Mr. W. G. Mitchell, C.B.E., president, Federation of Civil Engineering Contractors (left), Mr. H. Spragg, C.B.E. (centre), and Mr. C. H. Grist, president, Federation of Manufacturers of Construction Equipment

the more prosperous one becomes the greater the tendency to slacken the effort.

"These continual periods of economic crisis, these programmes of stop and go, of freedom and restriction, is of considerable disadvantage to industry. Production cannot be turned on and off like a tap, and so now we are given to understand that the three wise men are to go and we are to have an economic planning board instead, who will set out a full and complete programme covering all aspects of the problem for five years."

"All this may be very good and very sound, but all the planning in the world will not achieve anything unless it is backed up by the will, the determination and the spirit to carry out such a programme with the realisation that success is not only necessary but imperative, and to do that I believe that there are a number of fundamental facts that must be appreciated and not merely shrugged away as if they did not really mean anything."

"It must be realised that this country cannot live unless we export, and our competition in the export market is growing more severe every year. We are constantly hearing that we must maintain our standard of living and that we must improve our standard of living. All very laudable sentiments. But it must be realised that the only standard of living we can have is the standard we are permitted to have by our competitors, and it must also be realised to the full that our customers abroad could not care less about our standard



Mr. G. A. Hannah (left), Mr. E. Boydell (centre), and Mr. B. N. Jolly

JOINT STATEMENT ON TEA BREAKS

Call for Mutual Goodwill

TO provide a "basis for an immediate resumption of work on all sites", the National Federation of Building Trades Employers and the National Federation of Building Trades Operatives have issued a joint statement on refreshment breaks in the industry.

This eight-point statement followed a five-hour meeting in London of the executives of both organisations and was issued over the signatures of Mr. F. Oliver Jayne, the employers' secretary, and Mr. Harry Weaver, the operatives' secretary.

The text of the statement was as follows:

"In the negotiations which led up to the January settlement of the National Joint Council for the Building Industry on wages and working hours, agreement was reached between the Employers and Operatives on the need for achieving so far as possible in the reduced 42-hour week the same level of output as in the 44-hour week. Both sides appreciated that it would be against the interests of all concerned in the industry if the increase in costs involved in the settlement were not offset to some extent at least by an improvement in productivity.

"This was the background to the decision to include in the January settlement the change in the working rule on refreshment breaks.

"Under the new rule it is left to the management and operatives on each site and in each shop to make their own arrangements for refreshment breaks.

"It follows that in the absence of an agreed site or shop arrangement neither side can claim or enforce formal breaks other than the break for dinner. It also follows that where arrangements have been

properly agreed on sites between employers and operatives—including arrangements for formal breaks for tea under the rule—there must be no interference from organisations on either side to upset them.

"On the other hand, where circumstances permit and it is agreed at the site or shop, the taking of tea need not involve a formal break in production.

"The interpretation of the revised rule has given rise to many misunderstandings and there have been stoppages of work. This advice is issued to provide a basis for an immediate resumption of work on all sites. Any further dispute must be referred to the joint machinery without stoppages of work.

"Any outstanding questions of interpretation will be dealt with through the machinery of the National Joint Council for the Building Industry.

"Finally, the national parties call on all concerned to apply this advice with the common sense and mutual goodwill and forbearance traditionally associated with the joint relations in the Building Industry."

The National Disputes Commission heard several cases on the day following the joint statement and they were all dealt with on the basis of an immediate resumption of work and a resumption of site negotiations applying the principles contained in the statement.

A BRICK LIBRARY

The Building Centre, Store Street, London, W.C.1, has formed a brick library which contains sample panels of facing bricks from all parts of England and Wales.

SWEDISH ENGINEER TO SPEAK IN LONDON

AT the invitation of the Joint Committee on Structural Concrete, Mr. Bengt Axelsson, deputy chairman of the Swedish Society of Civil Engineers, is to speak on "Methods of Housing Construction in Sweden" in the lecture theatre of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, on Monday, October 23, at 6 p.m.

Mr. Axelsson studied at the Royal Institute of Technology in Stockholm, and at the Stockholm University of Commerce. In 1939 he was awarded the Ahlsell Scholarship by the Swedish Association of Engineers and Architects.

Since that time he has been concerned with construction and precast concrete production in Sweden and West Africa, and has made study tours of Europe, Canada, U.S.A. and the U.S.S.R. He was appointed president of Skarne System International in 1960, and is a member of the board of the Swedish Society of Engineers and Architects.

Mr. Axelsson will describe the emphasis on prefabrication and highly mechanised erection in Swedish construction work. Large precast concrete wall panels often of sandwich composition are a common feature of construction. For insulation against the extreme winters lightweight concrete slabs are widely used, both externally and internally and are often merely sprayed with paint as a finish. The lecture will be illustrated with slides and a film.

Further details can be obtained from: The Secretary, Joint Committee on Structural Concrete, Terminal House, Grosvenor Gardens, London, S.W.1.



B. AXELSSON

(Concluded from previous page) may well be reflected in some reduction in the industry's demand for plant," he said. "However, the work of the constructional industries—particularly building—is running at high levels, and it will probably be some time before the overall load of work declines appreciably."

Mr. Mitchell went on to say that the "pause" could be of benefit to the civil engineering industry if it were used by the Government and the Public Authorities as an opportunity for stocktaking. He said that the "pause" provided an opportunity to look forward and plan for the time when things could go full steam ahead. With that in mind, many works of civil engineering construction—such as water, sewerage and gas—should be pushed ahead so that, when the brake was taken



Mr. R. G. Ledger, chairman, Federation of Construction Machinery Importers (left), Mr. M. W. Bennett, Under Secretary, M.O.W. (centre), and Mr. R. W. L. Eke, F.C.A.

off, housing, factory development, etc., would not be held back by an insufficiency of public services.

He drew attention to the fact that extensive mechanisation had made the fortunes of civil engineering and the plant hire industry closely interwoven. "Like my Federation," he said, "you must be concerned to see that the Government's controls are lifted at the earliest possible moment."

The reply was made by Mr. D. C. Abelson, vice-president of the C.P.A., who said that never in the history of the building industry had there been a time when so much of the machinery and plant in use had been provided by the plant hire firms.

"Today," he said, "is the era of the specialists and it is an undoubted fact that in this age of continuous increase in mechanisation you can reap great advantage by using the plant and services that our members can offer."



Col. A. C. Newman, V.C., O.B.E. (left) and Mr. W. H. G. Roach, M.B.E., F.C.G.I., M.I.C.E.

TENDERS FOR ARTHRITIS' CENTRE

Tenders are soon to be invited for the construction of the first stage of a new centre for arthritis to be erected at St. John's Road, Crowborough, Sussex.

The works comprise a single-storey administrative block and a single-storey patients' wing, together with all ancillary works. The total floor area of the buildings is approximately 4,100 super. ft.

Tenders will be on a fixed-price basis and bills of quantities will be available in November. The successful contractor will be required to start on the site at the beginning of January, 1962.

Contractors wishing to tender for this work should apply to the architects, James A. Crabtree and Associates, 70 Blandford Street, London, W.1. The associate in charge is H. E. Senkowsky.

NOT A HAPPY IMAGE

Speaking at a luncheon of Central Area No. 1, Mr. R. F. Mansell, president of the London Master Builders Association, said: "There has been a deal of talk recently, and perhaps more particularly since the National Federation's half-yearly meeting, about the image we present to the general public."

"Let us not be complacent over this. It is not a happy one. It is true that it may have been an unfair one, and that there is much that can be done to improve it. In the long run, however, a favourable public image can only be restored to an industry that is worthy of it, and we need to realise that our best efforts in this direction will spring from a knowledge that the service we are commending is worthy of such a confidence."

Concluded from Previous Issue

MUNICIPAL ENGINEERS' CONVENTION ON "PLANNING FOR TRAFFIC"

FOLLOWING the discussion of the Paper presented by Mr. J. Rawlinson, chief engineer of London County Council, "Planning for Road Traffic in the Counties" was dealt with in a Paper given by Mr. JAMES DRAKE, county surveyor of Lancashire, and Mr. R. A. KIDD, county surveyor of Nottinghamshire. They said:

It is encouraging that the advent of motorway construction and the adaptation of a few of the major trunk roads to modern standards indicates some acknowledgement in Government circles of the critical need for action. The question is whether what is being done is realistic in volume in relation to the size of the national problem.

It must be acknowledged that the present highway system leaves very much to be desired. This results largely from past failure to allocate funds which bore any realistic relationship to the nature of the task.

Despite frequent warnings from authoritative bodies and individuals fully alive to the situation which was developing, and despite the present somewhat accelerated programme, the country is still faced with a formidable backlog of work.

Vehicle Duties

The present Government income from road vehicle licences, petrol duty, and so on, is approximately five times the total Government expenditure on roads. An examination of past figures and present trends clearly indicates the tendency for this gap between road user taxation yield and Government road expenditure to continue to increase.

At the current rate of expenditure, and with traffic increasing at its present rate, it must be envisaged that the situation on our roads will continue to deteriorate. This is clearly an intolerable state of affairs.

Our immediate and urgent task is to embark upon a boldly conceived programme of works calculated to cope fully with the developing situation. The programme must make it clear to all that this generation is not shirking its responsibilities, but intends to contribute to the future needs and economic well-being of the nation.

Up and down the country, highway authorities are staffed with engineers and technicians who are ready and willing to set about this task. We have a contracting industry second to none and fully capable of carrying such a programme into execution. There is, however, no room for vacillation. If the industry is to equip itself for the increased tempo required, it must, in view of the considerable capital investment involved, be able to look forward to a settled period of work at the accelerated rate. Once in top gear it must stay there.

Motorways

The few motorways which have been built in Britain have, in the Minister of Transport's own words, shown that for heavy volumes of traffic the all-purpose road is out of date. It appears to be quite obvious that all important roads will have to be built as motorways or to motorway standards.

Those so far completed have not only silenced the critics who cast doubts on their accident saving potentiality—they have also clearly demonstrated that highway engineers can build limited access roads which are pleasing in appearance and which do not detract in any way from the amenities of the areas through which they pass.

In the past, highway authorities have been badly handicapped by the uncertainty of Government policy on roads. They have been only too ready to submit schemes and programmes. For example, since 1955 two programmes have been submitted at the request of the Ministry of Transport: 1955-56 to 1959-60 and 1962-66. These requests raised the hope that at long last we could plan ahead—for four years at any rate. Unfortunately, the first programme came virtually to nought and the likelihood of the second being implemented to any degree seems doubtful, to say the least.

All the programmes which have been prepared have been largely a waste of time. They have resulted only in abortive effort on the part of the staffs of highway authorities and the generation of an even more acute sense of frustration. This sense must continue to prevail until in Government circles there is a realisation of the enormity of the problem.

Unless swift and drastic action is taken now, our road communications will cease to function. We venture to suggest that it is high time a very substantial increase in funds was allocated to them.

The terrible toll of human life increases every year. Surely, even apart from the disastrous effect on our economic life of crowding more and more vehicles on to our outdated roads, we have not reached such an apathetic state that we can ignore any longer the misery and suffering caused by these accidents?

Discussion

MR. CHRISTOPHER BRUNNER, vice-chairman, British Road Federation, congratulated the authors and complimented them on their clear and succinct analysis and commentary which, he said, certainly showed how little cause there was for self-satisfaction concerning the scale of our national road building programme. They had shown how previous road programmes had been rendered inadequate because they were based on forecasts of traffic growth which time and again had proved hopelessly under-estimated.

They had mentioned the serious handicaps formerly imposed on highway authority planning because of the uncertainty about Government policy. The erratic progression of the British economy in general in the past as the result of "stop and go" methods, which had put the rate of growth in recent years behind that of the other major European countries, now seemed likely to be replaced by longer term economic planning.

What had been particularly evident for many years in regard to road planning had finally been impressed upon the Government by the Plowden Committee of enquiry into the control of public expenditure. One of the Committee's four basic principles was that there should be the greatest practicable stability of decision on expenditure when taken, so that long term economy and efficiency had the best possible opportunity to develop.

There was a graph in the Paper showing the estimates of the Road Research Laboratory, which suggested a growth of 150 per cent. in the number of vehicles over the next 20 years. But in view of the serious backlog of road construction, and in the light of probable economic developments over the next decade, the road programmes of this country, if they were to be so called, must be geared to meet a demand greater than was indicated by the rate of increase in the numbers of vehicles from this time onwards.

The Government had made much of the contention that the present rate of major expenditure is several times bigger

than it was only five years ago. Whilst this was both true and welcome, it was unfortunately irrelevant. The point was how present expenditure compared with the level needed. Currently at least 60 per cent. of all inland goods traffic was carried by road, and congestion delays alone were adding a burden of well over £250m. a year to the distributions costs of British industry.

We must therefore be grateful to the authors for having demonstrated the extent to which alternative scales of expenditure might cope with overloading on major roads in their counties. It was clear that anything less than twice the present rate of expenditure did not seriously get to grips with the magnitude of the problem.

Enlarged Road Programme

Since we were assured that the main obstacle was the lack of money, the Minister of Transport ought to urge on the Chancellor the necessity for at least doubling the road programme immediately. Naturally and rightly, the priority had been the construction of an inter-urban motorway network for industrial needs, together with some major trunk road schemes; but the claims to improve a number of other trunk roads to serve the ever swelling tide of car owners, as well as the agricultural community, could not be postponed indefinitely. At the same time, although plans were in hand for redeveloping some of the bigger city centres, little had yet been done to build urban motorways, while within the conurbations some of the older suburbs had been losing their appeal as residential areas because they had failed to cater for the requirements of a motorised suburban population.

The need for an enlarged road programme was further emphasised by the spectacular economic advance of the Common Market countries over the past two years. Whether or not this country joined the Six, it was quite certain that Britain would experience ever growing competition. If industry must be efficient to survive, our system of communications equally would need to be efficient.

Landscaping

It was most welcome that landscaping was now receiving more attention than once it did, and the Minister was to be congratulated on appointing someone in his Department to deal with it. At present our motorways provided far too little visual relief. This was partly borne out by the photographs used by the authors to illustrate overbridges on by-passes. Whilst the bridges were fine examples of the engineers' skill, the highway itself and the embankments looked bare and uninteresting.

There was no need to undertake landscaping to the high and ambitious standards of "Capability" Brown, but this was an aspect of our road planning which deserved far more attention and which need not add appreciably to the cost. Certain sections of our motorways might well be improved by the planting of trees and shrubs. Any large scale road scheme or motorway project in the future should include as a member of its design team, perhaps as a consultant, a landscape architect.

Mr. Brunner also supported the authors' plea for adequate signposting. In some places, of which Greater London was a notable example, the standard of directional signs was a serious handicap to drivers. On motorways, however, the signs used were outstandingly good and, suitably modified, could well be adopted on other major routes. We could profit from the work in Continental countries. Again,

unless concerted attempts were made to improve road signs, drivers would continue to be impeded and sometimes endangered by the unsuitable and often uninformative signs along their routes.

Mr. J. J. LEEMING, county surveyor, Dorset, in a comment on the double white lines, referred to with qualified approval in the Paper, said the evidence in Dorset so far was that they had had no effect at all in reducing accidents.

Signposting

Mr. H. K. SCOTT, county surveyor, Londonderry, N. Ireland, picked up the statement from the Paper, with regard to signposting, that "Some standardisation with Continental practice would be desirable," and urged that a serious effort should be made to that end now. With the obvious increase of motorists from overseas and the possible entry of Great Britain into the Common Market, it would now appear to be an opportune time to implement standardisation. Most European countries had already adopted the International Code for signs, but Great Britain and Northern Ireland had not.

On the point that in this country we drove on a different side of the road from that used in most other countries, he wondered if it would be possible at some time in the fairly distant future for us to drive on the right. And in regard to the proposed Channel tunnel, or bridge, he wondered at which end drivers should change to the other side of the road—surely not half way across the Channel!

Mr. A. N. BRANT, assistant county surveyor, Cumberland, quoted from the Paper: "Had anyone, 10 years ago, produced a plan which provided for a five-fold increase in traffic, he would have been thought crazy and his plan dismissed." The late Col. G. T. Bennett, he said, had produced a plan nearly 10 years ago when speaking on "Road Planning and Safety" at the Joint Engineering Conference held in connection with the Festival of Britain in 1951. He had not then forecast the growth of Britain's traffic; he had advocated the construction of a first instalment of 1,000 miles of motorway, coupled with the removal of black spots from existing roads. His suggestion to charge a toll for the use of motorways had not been adopted, but he had prophesied that, when the first motorway was constructed, road expenditure would be recognised as being an investment and not a luxury.

Three years ago Mr. Drake had proudly presented this country with its first motorway, at Preston, which was quickly followed by another at Lancaster. In fulfilment of Col. Bennett's prophecy he now informed us that in 4½ years the Lancaster By-pass will have paid for itself. What better investment could we have—except more motorways?

Three-Lane Duals

Mr. Brant went on to ask if it were better for the country as a whole to build 100 miles of three-lane dual carriageways or 125-150 miles of two-lane dual carriageways with adequate provision of land and bridges to cater for the construction of a third lane at a later date. From the road safety aspect, even with a maximum speed limit of 70 m.p.h. as suggested in the Paper, he considered that three-lane duals were essential in the long run.

Circular No. 780, he continued, was mentioned in the Paper as the new Ministry standard for the design of roads in rural areas. Section 15 stated that junction layouts should be so arranged, by means of acceleration and deceleration lanes, that the speeds of traffic streams which were merging or diverging were about equal. Yet in Section 17 of the same Circular, laybys or emergency stopping places were to be only 10ft. wide or even only 8ft. wide, and a minimum of 100ft. long, with a kind of 45 degrees chamfer at each end into which vehicles were presumably to pull after becoming almost stationary in the fast carriageway, and from which the slightest movement put the

vehicles back into the traffic stream at zero speed.

He had figures showing that 18.36 per cent. of all accidents on a major all-purpose road involved a stationary vehicle. No wonder that, for safety's sake, so many motorists today were observed to be illegally stationary in the acceleration or deceleration splay at junctions. Surely better proposals were needed for laybys if hard shoulders were ruled out.

Mr. R. TURVEY (London School of Economics), referring to the references in the Paper to the degree of overload on roads, suggested that a better criterion would be the percentage of traffic travelling on the overloaded roads, and he asked if that percentage would decrease.

Minister's Comments

Mr. JOHN HAY, Joint Parliamentary Secretary, Ministry of Transport, commented on some of the points raised in the discussion. He said that Ministers, being politicians and, moreover, party politicians, had a vested interest in the success of their policies. No Minister liked to be associated with a theory which was clearly wrong or liked to be attacked for the failure of his policies; they liked, when going out of office, to have the plaudits of everyone. He asked the meeting to believe that the present Minister of Transport was anxious to ensure that our road programme was not only equivalent to the needs of traffic but also that the traffic problem became less and not more acute.

It was inevitable that much of the discussion had developed around the desirability of increasing the road programme. Speakers had said in no uncertain terms that the money provided was quite inadequate for the need. Some had said the amount should be doubled, and had demonstrated the need by figures and diagrams.

On this point, we could not assess the road programme by the amount of money to be spent on it. The Government as a whole had to decide how much money it could raise, in the light of the economic situation, and out of that total it must decide how much should be allocated to each of the various services which must be financed. Although we might argue about the size of the national income, the Government had to look at the picture as a whole and decide how much it could afford for each service.

Statutory Requirements

Secondly, there were the statutory requirements in respect of the acquisition of property, and it was suggested that this part of the programme should be greatly speeded up. Certainly he took note of this on behalf of the Minister. There might be a scheme for a road, and at the very last minute it was found that a landowner with a small plot of land was to be compelled to sell it, and there had to be a statutory Order and an enquiry. He appreciated that it was very infuriating; but he emphasised, as he had in his opening remarks, that in a society such as ours there must be protection for the individual, and much as we would like to progress more quickly, the plain fact was that we could do so only with the general consent of the public.

If the idea gained ground that we were riding roughshod over the rights of the individual there would be trouble. He did not wish to overstate the case, but Parliament and the Press would very quickly pick up any case that came to light, where a public authority had been proved to act in a dictatorial manner. We must act in a responsible manner. He did not say that something could not be done to speed things up; but he made it clear that, unless and until there was a great demand from the public that the process be improved, and unless and until the authorities were satisfied that this could legitimately be done, they had to work within the lines laid down.

Another factor was the highly built-up nature of our country. It had been pointed out that in the United States there was plenty of land available and that roads

could be built much more quickly; but in this country we could not find large tracts of land, and we had to make our plans to avoid disturbing the pattern of private ownership.

Labour Scarcity

Further, there was a scarcity of labour for road building, a shortage of the type of skilled labour that was required. As an example he mentioned that at a time when a major scheme in the north-west of London was nearly completed, another was started not very far away. On one of those schemes it was found that there was the greatest possible difficulty in obtaining sufficient labour, and the constructors began to offer higher wages. Immediately it was found that men were transferring from one scheme to the other; the men went a couple of miles to a new job for more money, and the work on the other scheme was delayed.

If we were to build roads in the context of labour shortage the work would take much longer than otherwise, or the constructors would have to pay much higher wages for labour, which increased the cost of the job. He was satisfied that if we increased the money available for the road programme we should not get all that number of new roads completed as quickly as we hoped, because of these other difficulties.

Still another factor was that the Ministry had to consider the total investment it could make, not merely on road, but all forms of transport; it had to consider the needs of the railways. There was to be a very important Paper presented that afternoon which dealt with the relationship between roads and railways. Not only had we a substantial road programme, but the Ministry was also committed to the support of the railway modernisation, involving £1,660m. The railways played an extremely important part throughout the country. So that it was necessary to maintain a balance in dealing with the problems of inland transport as a whole, commensurate with the total amount of money available.

In conclusion, Mr. Hay said he had been extremely interested in listening to the discussion. He would tell the Minister of the feelings expressed; but he also asked the engineers to bear in mind the other matters he had mentioned, so that they could come to the right conclusions about the major problem of planning for traffic.

Case of Reassessment

Mr. Kidd, in a brief reply, expressed his indebtedness to Mr. Brunner for his support of the authors' contentions concerning the road programme. He urged that there might be a case for some reassessment of the amounts of money allocated to the various purposes. Traffic conditions in this country presented a very black picture.

The desirability of having some standardisation was obvious. He thought the public were beginning to realise that the double white lines should be treated with respect.

Mr. Drake added that the motorways were not the "murderways" that some people had thought they would be.

Concerning the delays arising from the procedure concerning the acquisition of property, he did not think a lot of people should run the risk of being killed on the roads while the landowner was being given preferential treatment.

In his view there should be prosecution for driving over the double white lines.

PLANNING FOR TRAFFIC IN THE PROVINCIAL CITY

In his Paper, Mr. S. G. WARDLEY, city engineer and surveyor of Bradford, said: Planning for traffic in the provincial city is a far-ranging and formidable subject. A town or a city is a vital organism. It has a personality and, like all personalities, does not respond to some reach-me-down theories to solve its problems.

Fundamentally, it is communications which make a town. The great advances in means of transportation make for a



JCB IN SWITZERLAND

JCB SPANS THE WORLD



A **JCB** 4 working on the Chantier du Pont de Val D'Arve in Geneva. The government of the Canton of Geneva have ordered the construction of a bridge and connecting motorways at a new site on the outskirts of Geneva.

The excavation, to a depth of 8 ft on which a **JCB** 4 is being employed, is to establish a solid foundation level for the intersection between the bridge approach and the existing roadway. The excavation is by DALBERTO S.A. owners of the **JCB** 4.

Another roadway project on which a **JCB** 4 is working is the new autostrasse at La Bâtiaz near Martigny. The machine, illustrated overleaf, is digging a trench at the side of the roadway prior to drain laying, filling and servicing.

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wider choice of site for its successful growth. It is this unconscious knowledge that even the most inaccessible place can by some means be reached and its transportation needs be met which causes some exponents of town planning to overlook the fact that the successful growth of a town depends basically upon the quality of its communications with other towns or countries abroad.

The very problems which road traffic creates in towns and which is continually being represented as the bogy of this 20th century is the measure of the success of a town as a thriving, living organism.

The spotlight, for example, is trained on a relatively minor detail in a stupendous traffic network such as Piccadilly. The problems could be solved both functionally and aesthetically if the property in the vicinity were in the ownership of the local authority, and they were prepared to carry out a drastic surgical operation of demolition and subsequent rebuilding. The problem is not traffic congestion, but inflated property values.

The Obstacle

Are we going to accept mechanical vehicles on our town roads with the convenience of door to door transport and, if so, on what terms? The fundamental problem is not the fact that at some times during the day traffic is so thick on the ground that the speed of movement is reduced to a few miles per hour. That perhaps is a good thing, for it is the shocking loss of life and personal injury, most of which could be avoided if all classes of motor vehicles were in competent and considerate hands, which is the real obstacle.

It would seem that some people are blind to this issue. There are those who would blame what they claim to be lack of landscaping as a reason for the motorist going to sleep at the wheel on the modern motorway. Does the express train driver go to sleep through lack of landscaping, or would the pilot of an airliner who went to sleep be tolerated? Clearly, if we are to continue to live with mechanical transport on the roads of provincial towns, the same standard of competence and physical fitness to drive must be required of the driver of the motor vehicle as is required of those who carry the lives of passengers in their hands.

Towns have an attraction which arises from a host of different reasons. To many people, consciously or unconsciously, its streets and buildings have an aesthetic appeal. A fine street line with a facade of buildings of quality, terminated with a vista of equally attractive appearance, is a thing of great beauty. It can easily be destroyed by introducing objects or structures which interrupt the view.

Footways

When advocates of pedestrian segregation suggest footways and foot bridges across the streets at first floor level they are in danger of destroying one of the fundamental qualities of a great town or city. Road junctions in a town—especially in a city centre—are not only a source of danger to the pedestrian, but the pedestrian also causes an interruption in the flow of traffic. Whether or not the alternative to crossing the carriageways is an overbridge or a subway, experience so far shows that the pedestrian will only use the alternative with reluctance. The subway has much to commend it, however, especially if approached by ramps rather than steps.

Roads must figure prominently in this day of mechanised road transport, but rail traffic co-ordinated with road transport is an important factor in solving the problem of rational and safe road usage. Heliports and aerodromes for civil air travel must also figure in the planning for traffic in a provincial town.

Cause of Traffic Problem

Those who voice the opinion that the congestion caused by the ever-increasing volume of motor vehicles coming on to the roads is making for disaster and a complete standstill in the country's towns and

cities do little service to the public in solving the problem.

Until recently, practically nothing has been done to provide adequate roads for the last 30 years. Money has not been forthcoming to deal with the situation. It is, therefore, not surprising that we are faced with our present-day problems.

Mankind has grappled with his problems of town development and traffic in the past and will do so in the future. The pity is that he often waits so long to catch up with his arrears.

Discussion

Mr. H. T. HOUGH, city engineer of Liverpool, said he was glad the author held the view that planning for traffic and planning for town development were inseparable; that was a fundamental fact. Those words might be regarded as the text for Mr. Wardley's sermon!

Probably one of the most important paragraphs in the Paper was that on the need for discipline in the use of roads. No good purpose would be served if we constructed good roads in urban and rural areas if they were misused by drivers of vehicles. He imagined that 10 per cent. of road drivers were completely undisciplined and were a danger to all other road users and to themselves. In 1959, 6,520 persons were killed in road accidents in Great Britain and 327,000 were injured. Drastic action must obviously be taken against all those who were undisciplined on the roads. Some roads might be out of date, but that fact called for the best possible road behaviour.

Excellent provision for pedestrians were being made by Mr. Wardley in the centre of Bradford. That was absolutely essential, for pedestrians were vulnerable and they must be helped.

In Liverpool Mr. Hough now prepared a pedestrian traffic plan with every vehicular traffic plan. Subways or bridges for pedestrians must be part of every new road scheme.

It was interesting to note that Bradford had departed from the usual plan for an inner ring road which the Ministry of Transport advocated, in their publication "The Design and Layout of Roads in Built-up areas," of 1946, should not be more than 600yd. in diameter. Mr. Wardley's city ring road was one mile in diameter. Mr. Hough said he had always considered that as many multi-storey parking garages and other parks should be situated on the ring road so as to encourage persons to park their cars and walk into the city centre. To ask a motorist to walk half a mile to the centre seemed too much; he simply would not part with his car, but would try to park it in the central area streets.

A Good Idea

The civic ring was a good idea, but Mr. Hough did not agree with Mr. Wardley's east-west central route. It appeared to be the negation of the principle of the ring road, which, as stated in the Paper, "is to by-pass all purely through traffic having no business in the city centre." Good routes should enter the centre from the ring road, but they must not run right through and out on the other side.

In regard to parking, the ever-present obstruction to the free flow of traffic, Mr. Hough said that meters, with adequate off-street parking places, appeared to be the answer, as London, Manchester and other places were discovering. Liverpool was likely to instal parking meters in the next few months. He agreed that all buildings in a town should provide some parking spaces for the users of those buildings. This had long been the practice in America; he had seen there buildings which provided parking on the same floor as tenants' offices.

The Institution of Municipal Engineers was considering the problem of providing parking space in buildings, and one hoped that a national standard would evolve.

Mr. P. ALLEN, Chelmsford, Essex, said it had been stated that work expanded to fill the time allotted to it; that was one of Parkinson's laws, which might or might

not be right. Road traffic expanded to fill the road space allotted to it. New traffic roads attracted traffic partly from the older roads which they were designed to relieve. In the city centres the traffic conditions were so bad that it was not possible to estimate with accuracy the traffic capacity or how much relief the new roads would bring, because the O. and D. survey could take no account of the traffic which was prevented from using the roads, prevented because the roads were choked with traffic. Once the new roads were constructed, journeys would be made at peak times, not only on those roads but also on the older roads which would have been made at some other time or in some other way.

Healthy Sign

Experience at Doncaster illustrated that. At one time it was forecast that if the by-pass were constructed there would be a 70 per cent. decrease in town traffic. Now that it had been completed, the overall reduction was only 6 per cent. This, of course, was a healthy sign; it meant that people at Doncaster could once again use their own roads. It also underlined the plea that we must plan boldly for city traffic. We were not planning for 20 years, we were not planning for the life of a development plan; when planning a new road or widening an existing one in a city centre the opportunity was given to look ahead 50 years. So that we must plan for multi-level junctions at major intersections. We should be told that the money was not available for grade separation in our city centres. It was something we must press for.

Mr. HUGH LAWSON, deputy city engineer, Nottingham, referred to a plan in the Paper showing the civic centre in Bradford and the civic ring road around it, and said he imagined it was part of the plan that Mr. Wardley had produced in 1946, when he had taken up his appointment, and in the context of that time it was an excellent plan; it showed the sort of thing which was then thought to be adequate for the future. We had some traffic roundabouts which looked to be 100ft.-120ft. in diameter; we were planning such roundabouts then and had built some of them, and they are certainly not dealing with the volume of traffic for which we should be planning now.

He mentioned this to illustrate the difficulty which the highway planner in a city had before him. Planning permissions were given, buildings were put up, and before his plan could be carried out a great deal of it was out of date.

Around Existing Blocks

Looking at the sort of traffic volumes we should cater for in a city of a quarter of a million population, if we worked out the kind of gyrational system needed, and if we wanted a roundabout, the mean diameter would be 300ft.-400ft.; it was too big just to put grass on it, with flowers in the middle, from an economic point of view. One thing we must look to, particularly for the short-term, was to make gyrational systems around existing blocks of buildings; very often there was a block having a mean diameter of 300ft.-400ft. The traffic would move so fast that pedestrians would not be able to cross, and the premises on the centre island would suffer. Coupled with it there would have to be grade separation for pedestrians, underneath or on top.

He would not rule out the possibilities of joining the block in the centre of the gyrational system with the roads on the outside by pedestrians ways across the roads. There could be a multi-storey car park, bringing the vehicles off by slip roads or underground ways, or one might make provision for a motorist to slip into the car park in the centre of the roundabout and, as a pedestrian, come out by subway.

Mr. E. W. MOULSON, Bradford, spoke in "defence" of Mr. Wardley and said that his plans had the blessing of the Ministry of Transport. Mr. Lawson would fill all the roundabouts with buildings; but would he not agree that a nicely laid out centre was nice to look at? Bradford was for-

fortunate to possess the land without having to go into the money market to borrow. Mr. Wardley had done a fine job of work, and a lot of people who came into Bradford said it was up to date. It was bringing in the equivalent of a shilling rate.

Further, the sewerage and water supply scheme, serving an area ranging from 120ft. to 2,000ft. above sea-level, was a fine engineering feat.

RAILWAYS: THEIR FUTURE ROLE

In his Paper, Mr. C. W. KING said: The position of railways in national transport has changed radically since their early days. Door to door conveyance, especially when associated with short distance travel for both passengers and freight, has obvious advantages. There are savings in time and immediate cost when passengers or freight can be conveyed for the whole journey in the same vehicle without change or transfer, and when the journey can start and finish at times which suit individual convenience.

At normal times, the railways find it difficult in such circumstances to compete with motor vehicles. This is particularly so with family journeys, for which there are the added advantages of being able to "loose-pack" the boot of the car and to adjust starting and running schedules at will.

In planning for the future, the railways have to recognise these factors. But they consider they can offer outstanding advantages for longer journeys and, in times of highly congested road travel, for short distances as well. Average speeds are higher, there is greater safety, better amenities and larger capacity for moving people and heavy loads.

If it were feasible to contemplate abandoning the dense suburban routes and the numerous long main track lines of the railway system, a vast amount of money would have to be spent in providing an expanded road system to carry the present volume of traffic, without regard to future growth.

Modernisation

The railways are being modernised—£1,660m. may be spent in improving track, modernising motive power and rolling stock, providing new marshalling yards and reconstructing stations. When they have been re-equipped, they will be ready to fulfil the role in the nation's transport system which they can claim they can do best.

If full advantage is taken of their improved efficiency and increased capacity, they will carry more traffic. This should relieve pressure on existing roads and avoid the need for some of the additional roadways which would seem to be required if road traffic continues to increase as it has been doing in recent years. This could result in freeing capital and resources for accelerating some of the much-needed improvements of the congested road system in built-up areas.

Few will dispute the suitability of a fast and frequent railway system, such as the Southern Region, for handling very heavy morning and evening flows of business traffic. The modernised services now being introduced at other London termini and centres elsewhere, in consequence of electrification or the introduction of diesel power, will be comparable. The map of British Railways is changing as non-paying and redundant lines and branches are dropped.

The aim as far as freight is concerned will be to carry it throughout to a large extent in containers with suitable appliances for quick handling at terminals.

For passengers, main line train services could well be coupled with greatly expanded car hire facilities, and in any case must be linked to much larger car parking spaces. There would also seem to be scope for expansion of the present "car sleeper" and "car carrier" services, which save passengers the strain of travelling long distances.

It could be that as the future map of

the system takes shape it will be considered possible and worthwhile to allocate a north to south and an east to west route for the conveyance of frequent and high speed freight trains, with up-to-date transfer stations as terminals, having adequate handling facilities, and so situated that the traffic on to and off the rail wagons may merge smoothly with road traffic and flow easily to its final destination.

These proposals are very much in line with those recommended for a Channel Tunnel by the Study Group. In that project, terminal stations are to be built on each side of the Channel near the tunnel portals. At these stations, apart from through passenger trains, road vehicles of every type will be accepted and loaded very quickly on to rail wagons and passed through the tunnel on trains travelling at high speed and at frequent intervals.

It will be in the national interest for there to be the maximum possible co-ordination of future planning for both roads and railways. This will ensure that the limited capital available is spent in the most worthwhile directions and, having been spent, that the country reaps the maximum benefits.

The essence of such co-ordination would be a national plan. However distasteful it must seem to those who feel that the great British public ought to be allowed for ever to do exactly as it likes, it would also require—to be successful ultimately—some measure of national traffic regulation.

Discussion

MAJOR-GENERAL LL. WANSBROUGH-JONES, secretary general, British Transport Commission, in thanking Mr. King for his Paper, said the President had chosen a singularly appropriate time to discuss "Planning for Traffic." The word "planning" was acquiring increased significance in connection with traffic and the British Transport Commission naturally welcomed any encouragement to long-term traffic planning.

There were three main requirements for planning—good information, basic assumptions and a set of objectives. These must be fulfilled if the plan were to be of any value.

In the economic world we heard a great deal about five-year plans; but was that period long enough? True it represented the maximum term for a Government and perhaps, therefore, a practical life for a policy. But for traffic it was probably not long enough, and he suggested that we should look at least 10 years ahead. That required courageous thinking, if we considered developments in any form of transport during the past 10 years.

The General drew attention to three points, outside Mr. King's Paper, as being particularly relevant to discussion on this subject. First there was the stress laid by Mr. Rawlinson at the end of his Paper on the crying need for an integrated plan. The Commission subscribed to the idea of a plan for transport as a whole and for the country as a whole. Secondly there was the computation by Mr. Drake and Mr. Kidd of the return on capital spent on motorways, assessed in terms of savings in time and accidents; it was a computation not inappropriate to railways, if not officially acceptable. Were the true costs of road transport, including parking, policing and traffic lights, really known? Thirdly, there was the reference by the same authors to the futility of planning programmes for work without any knowledge of the funds that were likely to be available.

The point made by Mr. King concerning road/rail interchange highlighted one of the principal problems facing the railways. They must find some means of achieving a door-to-door service without increasing costs to an uncompetitive degree. Railway rationalisation was leading to freight concentration schemes in which central depots, laid out by modern lines, were served by road, and, between those depots, trains running on the "liner" rather than the "tramp" principle. The "Condor" trains, carrying containers between London and Glasgow to passenger train timings,

were examples. Trains of road-railers might be the next development. Movement in trainloads was clearly the cheapest way to move freight, but it had its effect on terminal and port design and layout. The freight concentration policy by its very nature required the siting of depots on the outskirts of towns.

Suburban Traffic

The problems of suburban rail traffic had been illustrated by Mr. King. Surveys recently made by the Southern Region indicated that by the next 20 years or so the population in the Kent area would increase by 14 per cent., and peak travel by 28 per cent., while in Surrey and Sussex an increase of 13 per cent. in population would expand peak travel by 42 per cent. These figures would have their effects on the Southern Region London termini and there would be similar problems for the other stations. They should be conceived as transport centres for travel by air, bus and tube; indeed, all the big rail termini, whether in London or outside, must be associated with planning for traffic. Most of them were out of date, relics of a spacious age of rail monopoly.

Reconstruction of a London terminus in the modern idiom could cost about £10m. It could not by itself generate the additional revenue from traffic to service that amount of capital. So that profitable commercial development was essential to station reconstruction. That brought new traffic problems. Offices, the most paying development, created parking difficulties, and we could ill spare valuable space in cities, except at a reasonable price, for parking or for road improvements. Helicopters, for which rail termini seemed well suited, introduced further complications for noise and other reasons.

A Comparison

It was beginning to look as if the roads would be unable to cope with the traffic of the future. The railways could accept a considerable amount of additional traffic, especially freight. That prompted the speaker to make a comparison between road and rail engineering which was not always appreciated. The railways had to modernise themselves, with all the attendant operating difficulties which that involved, whilst still carrying traffic over the tracks and fighting for more. The modern motorway, which might cream off some of that traffic, grew daily, often alongside the railways, without any such difficulties and carried no traffic until it was complete.

Finally he made the point that in a national emergency the railways and roadways were essential to the economic life of the country. The railways' contribution to our survival in the last war was frequently overlooked, although it was in part responsible for their condition after the war. In our national transport plans we should also bear in mind the requirements of a national emergency.

Mr. C. E. DUNTON, chief civil engineer, London Transport Executive, first put on record the fact that the L.T.E. had had great co-operation from the L.C.C. and other parties.

Having referred to the Piccadilly Circus tube station, with its large underground ticket hall and subways leading up to the streets around it, he went on to discuss the Notting Hill scheme, where there were formerly stations on either side of the road; in co-operation with the L.C.C. those stations were combined and there was an underground ticket hall. When the co-ordination of the L.T.E. system was completed it would carry very much greater traffic, and revenue would increase. They were concentrating on building a new tube; the stations must be in the right places and must connect with the main line railway stations, provide for widenings, and through road routes.

He did not seriously believe that London's traffic problem would ever be solved by improvement of the railways alone. He was very sure that the roads should be improved and that the money must

(Concluded on page 1970)

BETTER EDUCATION, STATUS AND SAFETY

Three Tasks For Quarrying Industry

By Our Own Representative

THE annual conference of the Institute of Quarrying, held last week at Torquay, may well prove to be a turning point in the history of quarrying. The education and status of quarry managers and the urgent need to improve safety figured largely in the proceedings. For the first time, a Minister of the Crown was the principal guest at the conference, and it must have been gratifying to the Institute to hear the Minister of Power, Mr. Richard Wood, support the aims of the Institute and call upon employers in the industry to give it their backing and encourage managers and other officials to become members.

Speaking at the annual banquet, the Minister paid a tribute to the industry but took it to task over safety. He said the industry had continued to grow in importance and now produced each year about the same amount of mineral as the coal-mining industry and its importance was likely to increase as constructional work grew. Productivity had also grown quickly—which was a tribute to management and to the designers and producers of the machinery and vehicles now in use. But the improvement in efficiency had not been accompanied by a corresponding improvement in safety. There was a higher fatal accident rate in quarrying than in coal-mining. Emphasising the seriousness of the problem he called upon the Institute to do all it could to help to reduce the number of accidents.

Professional Status

The need for a proper professional status for quarry management, based on sound technical training and practical experience, was emphasised by Mr. Basil H. Marriage, retiring president, in his presidential address. He pointed out that the quarrying industry was the backbone of industrial activity, having a tonnage output at least equal to that of deep-mined coal. Its products were vital to steel, transport, building and civil engineering — and cosmetics! The country's wealth came out of the ground.

Education and training were the key to all this and the Institute had recently

become increasingly concerned with the establishment of proper technical qualifications for quarry management. Modern developments, including automatic control of plant, demanded this. For several years the Institute had run its own Associate Membership examination system, and was now doing its utmost to persuade the industry to engage young men as trainees and give them every facility for technical education.

Mr. Marriage stressed that the time was approaching when membership of the Institute would be an essential requirement for a responsible appointment in the industry. It was already recognised as the professional body to which technical and management staff in quarrying felt proud to belong.

Education in the Industry

The education facilities and qualifications available were outlined by Mr. B. J. Gee, B.Sc., A.M.I.Chem.E., M.Inst.F., in a Paper, "Education in the Quarrying Industry." Speaking of the "poor response generally" to the training scheme recently introduced for the quarrying industry he appealed to employers to nominate candidates for training.

Referring to plant and equipment, Mr. Gee said it was clear that they needed better educated and trained men, and more of them. Taken in conjunction with the capital investment in the industry, and the present-day high cost of plant and equipment, it was a prudent investment to employ competent staff all the way down the line. Vastly increased mechanical equipment, both in number and size of units, had also brought with it new hazards to safety, which was of vital concern to the quarry operator. Great emphasis was laid on this matter in the Institute's examination and experience qualifications, and the legislation of the last decade had increased the statutory duties of owners and managers alike.

The Mines and Quarries Act 1954, together with the Regulations, rightly laid responsibility first on the owner or his representative, then the manager, and last but not least on the workmen themselves. The Clean Air Act 1956 had also thrown up problems, particularly in the matter of

dust suppression and smoke abatement from lime burning. The Town and Country Planning Act 1947 created a host of new problems for the industry—to quarry or not to quarry, waste disposal, restoration, landscaping and the like.

With keen trading conditions, normal commercial problems and risks, graduated pension schemes, and the operation of the Restrictive Practices Act, on the one hand, and increased complexity on the production side, surrounded by extending legislation, on the other, the manager of today needed both training and acumen to conduct the affairs of his company with any measure of success.

In short, the case for enhanced educational standards and technical training in the quarrying industry was to raise managerial efficiency in all its aspects, thereby improving production and operating efficiency, and the standards of safety of operations and welfare.

Inadequate Public Relations

Dealing with the lack of appreciation of the role of the quarry manager outside the industry, Mr. Gee said the mythical man in the street seemed to have the notion that a quarry was a "hole in the ground," where rough uncultured characters hew stone with bare hands. The public relations activities on behalf of the industry had been inadequate to a degree, and in this age of the scientist and astronaut the professional engineer, including those engaged in the quarry industry would suffer a continuing loss of recognition if this parochial policy was allowed to persist.

In spite of the immense effort made at considerable cost since nationalisation, and the publicity, both favourable and otherwise, given to the coal mining industry, recruitment of technicians continued to be a problem of some gravity. This was the situation, then, against which they had to view the problem of recruitment for the quarrying industry.

If the industry expected to obtain the services of trained personnel in the special functions of quarry management, then by and large the industry must take steps to ensure the appropriate inflow of suitable candidates, and make provision for their further technical education and training.

REPORT ON CECE ANNUAL GENERAL MEETING

From A Correspondent

THE annual general meeting of CECE (Comité Européen des Matériels de Génie Civil) was held in Brussels at the Palais de la Dynastie on October 6. Mr. G. A. Hannah of the United Kingdom, presided.

It was reported that membership of CECE now consisted of Belgium, France, Germany, Italy, Sweden, Switzerland, United Kingdom and ARBED of Luxembourg, and it was decided to invite Austria to become a member.

During his address, the president emphasised his firm belief that CECE had a most important function to perform in the European Construction Equipment Industry, and added that with the hopes that he had that the United Kingdom and other countries of the E.F.T.A. might soon become members of, or associated with, the European Common Market, it seemed apparent that CECE would have a role to play even more important than had originally been envisaged.

Reports were also given regarding the activities of the eight sections. These are

as follows, with a note of their presidents: Section I—Asphalt Plant (Mr. A. Pommier); Section II—Concrete Equipment (Dr. A. Voegelé); Section III—Compaction Equipment (Mr. B. Thomassen); Section IV—Stone Crushing Equipment (Mr. F. W. Parker); Section V—Soil Stabilisation Equipment (Mr. P. Malbrunot); Section VI—Excavators, etc. (Mr. W. Cordes); Section VII—Dumpers (Mr. B. N. Jolly); Section VIII—Tractors, Loading Shovels, Motor Graders and other Earthmoving Equipment (Mr. J. F. Clerc).

It was apparent from these reports that considerable progress had been made in the drawing up of terminologies and the formulation of draft test procedures for a number of items of equipment covered by the sections.

Mr. Cordes of Germany was elected as president for the next two years, with Mr. Pommier of France as vice-president.

Many of the delegates paid tribute to the value of the co-operation which was being established through CECE by the European manufacturers of construction equipment.

MANCHESTER DEVELOPMENT IN SEWAGE TREATMENT

A Paper describing some important development work which has been proceeding in recent years in improving the efficiency of the activated sludge process of sewage treatment was presented at the Institution of Civil Engineers in London last week.

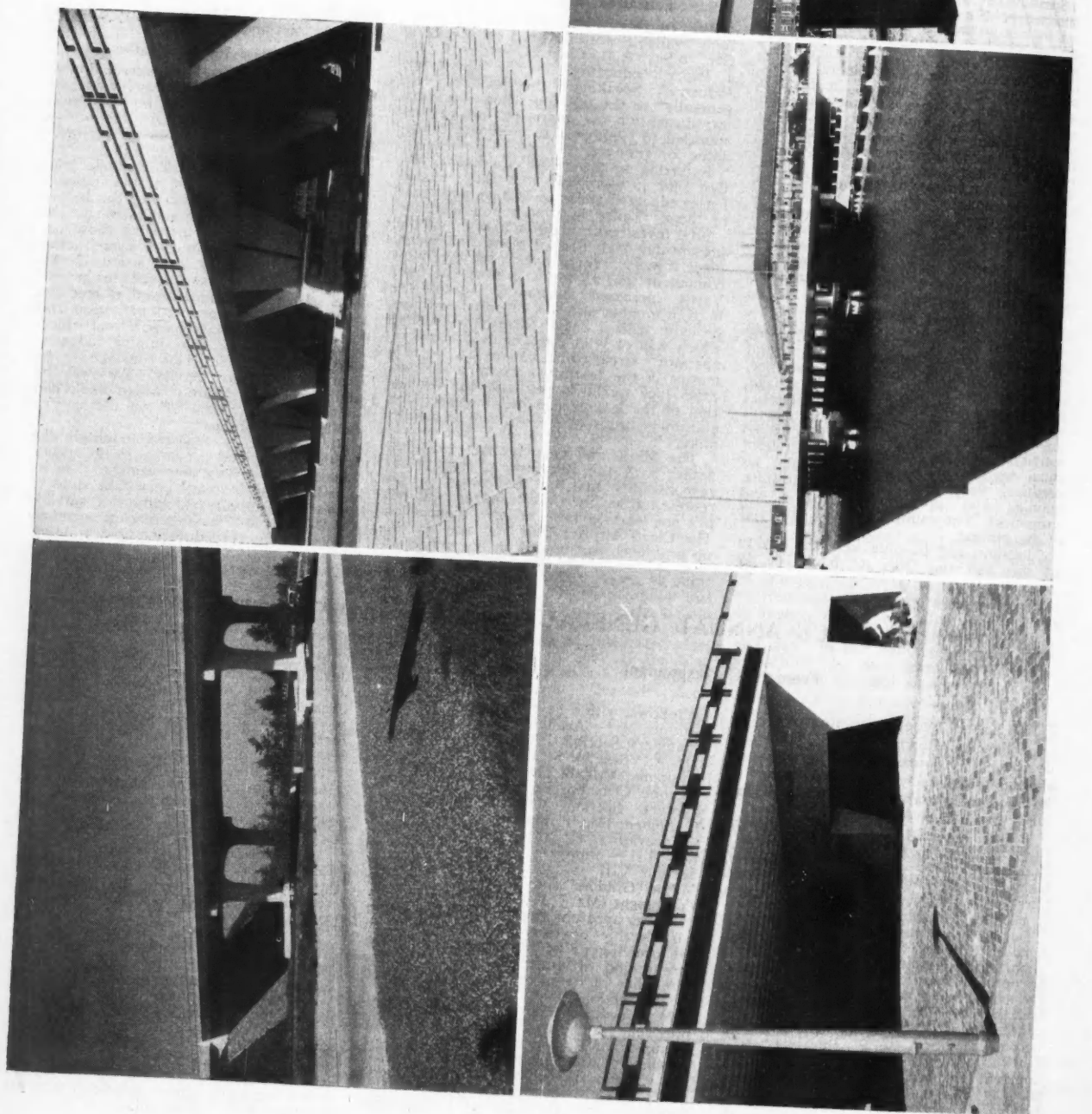
The author, Mr. James McNicholas, general manager of the Manchester Corporation Rivers Department, brought available information up to date and gave an account of much of his original work.

Mr. McNicholas described the Inka system of air diffusion and summarised the experimental work on mechanical aeration systems, carried out principally at Manchester sewage works.

"One of the most expensive sections of waste-water treatment," said Mr. McNicholas, "is that in which biological agencies, usually either percolating filters or an activated sludge system, are employed for the removal and oxidation of impurities contained in true and in colloidal solution. One of the principal reasons for the high cost of such treatment is that means for speeding up the rate at which organisms affect oxidation are as yet not very well understood."

Top:
(Left) One of the motorway prestressed concrete bridges
(Right) Bridge No. 705

Bottom:
(Left) Bridge No. 717
(Centre) Bridge No. 386
(Right) View of pedestrian guard rails on Bridge No. 386



PAVINGS DEVELOPMENT GROUP IN HOLLAND

Road, Bridge and Flood Prevention Works Visited

By Our Own Representative

ROAD and bridge construction and flood prevention works in Holland were inspected by members of the Pavings Development Group during their recent European tour. Of special interest were the experimental sections of prestressed concrete motor road laid down in 1957 and 1960, the graceful bridges and viaducts in the Cornelis Lelylaan elevated road scheme, the country's first aquaduct and the Harinrvliet sluices project.

The party entered Holland from Germany on National Road No. 12 at Arnhem. This section of motorway between Zevenaar and the German frontier is the last part under construction of the European Road E36 in Holland, which forms the connection between the Hook of Holland and the Rhur. The Group were welcomed by Dutch officials and shown parts of the road under construction.

National Road No. 12

The motorway consists of two carriageways, each with two lanes with a width of about 12ft. per lane. The central reservation is 15ft. wide; the right-hand side of each carriageway is provided with a hard shoulder, width 9ft. The width of the completed embankment will be 93ft.

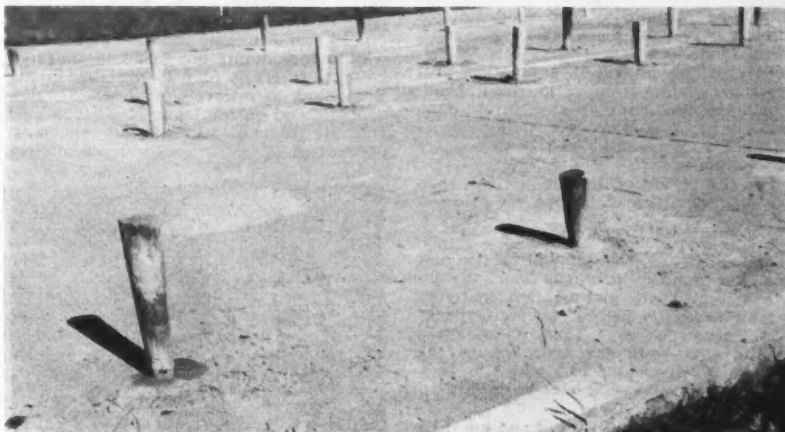
Carriageway Construction

Each lane is constructed over the full width.

For the sub-base a 6in. cement-sand stabilised layer is placed on compacted sand. A quantity of approximately 7lb. per cu. ft. cement is spread on the pre-compacted sand layer and has to be mixed in place over the full 6in. depth in one operation, and compacted by vibration. A small amount of water is added, which must agree with the maximum moisture content based on a Proctor sample. The maximum deviation allowed from the theoretical profile is $\frac{1}{4}$ in.

The concrete slab is built in two parts; a bottom layer about 7in. thick with a cement quantity of approximately 17lb. per cu. ft. and a top layer with a cement quantity of 22lb. per cu. ft. and a thickness of $2\frac{1}{2}$ in.

The bottom layer has to be vibrated at least three times and the top layer placed by machine as rapidly as possible. Finally



Pressure grouting of concrete carriageway to correct subsidence



(Left to right) N. Borg, deputy city engineer and surveyor, Birmingham, discusses a point with T. Donkin borough engineer and surveyor, Sunderland

a machine with a heavy beam operating on eight wheels finishes the top layer with small transverse movements. A maximum deviation of $\frac{1}{4}$ in. is allowed, measured over a length of 13ft. Curing of the concrete is carried out to normal standards.

The transverse joints consist of dummy joints 21ft. apart and expansion joints at maximum intervals of 450yd., according to the daily progress. Dummy joints are made alternatively as sawn and as vibrated joints.

The hard shoulders are made of lean concrete 8in. thick with a cement content of 5.5lb. per cu. ft. The top layer is sprayed with an asphalt emulsion (0.1lb. per sq. ft.) and the surface treated with the same asphalt emulsion (0.3lb. per sq. ft.) and a layer of broken shingle (2lb. per sq. ft.). Transverse joints in the hard shoulders are required at 80ft. intervals. Hard shoulders and traffic lanes are separated by a concrete haunch of triangular cross-section.

National Road No. 4A

After spending the night in Rotterdam, the party inspected city development in the city and National Roads 4A and 13 between Rotterdam and Amsterdam. Viaducts on the outskirts of Amsterdam were also visited.

Until National Road No. 4A was partially opened to traffic, the connection between Amsterdam and Rotterdam consisted of National Road No. 4 (Amsterdam -The Hague), a route through The Hague and Rijswijk, and National Road No. 13 (The Hague-Rotterdam).

Shortly after the completion of National Roads No. 4 and No. 13 it was found necessary to create a detour for The Hague and Rijswijk in the form of National Road No. 4A. This road starts at National Road No. 4 near Burgerveen in the Haarlemmermeerpolder and continues in an almost straight line east of Leyden, to join National Road No. 13 near Ypenburg Airport, south-east of The Hague.

The length of the old route from Ypenburg to Burgerveen is 38 km. The new route is 8 km. shorter, and a gain of 30 minutes is effected by avoiding The Hague and Rijswijk.

The junction of roads No. 4A and No. 13 near Ypenburg takes the form of a large roundabout. A junction with a possible road from the Westland across the De Vliet canal can be made at some future date.

The entrance to Ypenburg has been moved to make it readily accessible. The



Section of experimental prestressed concrete pavement laid in 1957

course of road No. 13 will be altered between Hoonbrug (entrance to Rijswijk and The Hague) and the branch leading to Delft. The level of the roundabout and of road No. 13 will be such as to present the minimum of interference by aeroplanes with the free flow of road traffic.

The intersection between road No. 4A and road No. 12 (The Hague-Utrecht-Arnhem-German frontier, Ruhr region) takes the form of an elevated roundabout with four viaducts. Its design is such that, should it become overloaded in the future, it will be possible to lead road No. 4A directly over it by means of an additional (arched) viaduct.

Part of the project is a junction near Leidschendam with the so-called Landscheidingsweg which, at some future date, is to be continued as far as road No. 4 (viaduct at Wassenaar) and farther on to Scheveningen.

For the benefit of Leyden not less than five junctions to road No. 4A are planned.

Soil Investigation

The quality of the sub-soil of the new road was found to be mostly poor. Extensive soil-mechanic investigation therefore became necessary before starting embankment construction. This investigation showed that, with the exception of the sections between km. 15.5 and km. 17.7, soil improvement would have to be effected on a large scale.

The sections between km. 4 and km. 15.5 and between km. 17.7 and km. 25.5 proved particularly bad; the thickness of the weak layers varied from 9 to 14 metres. Economic and technical considerations precluded the complete removal of these layers.

In determining the depth of the excavations it was assumed that about two-thirds of the settling theoretically to be expected occurs while work is proceeding (experience has shown that the remaining part follows gradually or not at all).

The width of the excavation was designed so that the sand placed in the excavations would not cause a disturbance of the equilibrium, with a consequent raising of the soil at the sides of the excavations. With the exception of a few high points near bridges and viaducts, the necessary sand could be pumped into the excavations. At these higher points a layer of several metres of dry sand was placed in position in order to avoid disturbance of the equilibrium.

The junction of Provincial Road No. 6 with National Road No. 4A near Hoogmade (km. 19) was laid on sand drains, in a highly successful operation resulting in a two-metres compression in one month.



(Left to right) G. S. Chambers, chief engineer, Ministry of Commerce (N.I.); A. S. Coombs, Ministry of Transport; and F. M. Bowen, Scott and Wilson, Kirkpatrick and Partners, discuss the canal aqueduct with one of the Dutch engineers

A total of 4,300,000 cubic metres of bad soil was dredged, and a total of approximately 7,500,000 cubic metres of sand was needed for the whole road.

The road consists of two carriageways 7.25 m. wide, separated by a central reservation 4.5 m. wide. On the outside edges of the carriageways there are parking strips 2.75 m. wide, and grass verges 1.75 m. in width.

The following slab designs were used between road No. 12 and Provincial Road No. 5. Concrete 23 cm. thick, laid on a layer of sand; concrete 20 cm. thick, laid on 14 cm. of sand-cement stabilisation (Contraction joints are made in the concrete at intervals of 6.25 m., and expansion joints at intervals of about 300 m.); concrete laid on lean concrete; prestressed concrete 12 cm. in depth (pre-tensioned, prestressed 22 kg. per cm.²—length of slabs



Pressure grouting of carriageways is a talking point between (left to right) G. Wood, Ove Arup and Partners; C. A. Richards, G. Percy Trentham, Ltd.; a Dutch engineer; and R. B. Mace, L. G. Mouchel and Partners

100 m.); and prestressed concrete laid on sand-cement stabilisation.

The surfacing of the parking strips consists of lean concrete or cement-sand stabilisation, sprayed with bitumen and with a final layer of gravel.

Between National Roads No. 13 (The Hague-Rotterdam) and No. 12 (The Hague-Utrecht) there was an original stretch of 20 metres of concrete. On this, 6 cm. of broken gravel washed in with sand, 4 cm.

of gravel penetrated with bitumen, and a bituminous layer were placed in succession. Finally, very fine gravel was scattered over the whole. To complete the surface, a layer of hot rolled asphalt will be added. The elevated roundabout above road No. 12 has the same surfacing. The accesses to the roundabout have a concrete surface. The difference in colour between the surfacing of the roundabout and the accesses serves to mark the function of the roundabout.

The new road crosses three railways, four national roads, three provincial roads, 11 local roads and 12 canals. The final number of structures on the road will be 38, including viaducts, bridges and tunnels. Among the structures of interest are two movable bridges across the Oude Rijn, and a number of bridges and viaducts made of precast beams.

As the Hague-Pynacker Railway could not be raised, the road has been carried below it. The result is that the level of the road at that

point is lower than the existing water level of the polder. A new polder (area 3.55ha.) had therefore to be created with a water level lower than that of the surrounding polder.

One of the 38 structures which were required to be built for this highway was an aqueduct, the first structure of its kind in the Netherlands. This was built for the intersection of the highway with the ring canal of the Haarlemmermeerpolder, approximately 17 miles south of Amsterdam.

This canal is extensively used by ships and also by many pleasure-craft, especially during the summer. This fact made it unacceptable to construct a bridge at low level, which would have to be opened for all traffic in the canal. A high-level bridge, which only required opening for some ships, would have been very costly, as the low-lying land of the Haarlemmermeer and Googerpolder would have necessitated very long and very high approaches. This difference in level between the canal and the polders made it more logical to cross the canal with a tunnel. The final choice was therefore an open tunnel trough, crossed by a reinforced concrete channel (the aqueduct) which now carries the water of the canal. The bottom of the reinforced concrete channel is therefore the roof over the highway.

The total length of the structure is 1,300ft. and the shipping width 98ft.

The bottom of the canal is locally 8ft. 8in. below N.A.P. (water level). The road dips to nearly 30ft. below N.A.P.

Construction

First a diversion of the canal was carried out in 1957, over a length of 1,300ft. This diversion was to the south of the existing canal. Then a construction pit was excavated to the north of it, first to a depth of 23ft. below N.A.P. A dewatering system was then installed and the construction pit completed to a depth of 42ft. below N.A.P.

Subsequently the reinforced concrete piles for the aqueduct and the northern approach trough were driven to a predetermined depth. This depth was that of a layer of sand of sufficient bearing capacity, the depth of which varied between 43ft. and 56 ft. below N.A.P. These piles carry the floor of the tunnel.

The floor consists of a 4in. thick construction floor, a layer of bitumen, then a 1½in. thick second construction floor, and finally a reinforced concrete slab, the thickness of which varies from 3in. to 4ft. The sides of the trough are carried by this floor. These sides are covered on the outside with a layer of bitumen and protected with a shell of masonry.

After the completion of the aqueduct the canal was diverted back in January, 1960. The construction pit on the south side was excavated and the remaining part of the tunnel trough was constructed.

No lights have been installed under the aqueduct, because the length is only 115ft., but provision has been made to install them at some later date if this should be necessary.

Part of the approach pavement on the north side of the aqueduct is constructed as an electrically heated experimental section. The western side of the pavement is constructed in prestressed concrete, and it is possible to connect the wires to an electric power supply system over a length of 460ft. The eastern part is constructed as a bituminous road and insulated wires are installed over a length of 275ft.

The required electric power will be supplied by an already existing transformer station. This station was required for the pumping installation of the aqueduct. The total cost of the aqueduct was approximately £490,000.

Prestressed Pavements

Traffic on the 17 km. long section of road No. 4A, which lies between Provincial Road No. 6 and National Road No. 12, is about 7,000 vehicles a day. The concrete slab of this section is of normal construction, 0.23 m. thick except at three places where experimental sections, with a

length of about 100 m. each, have been constructed of prestressed concrete.

Two of these experimental sections were laid on a foundation of well-compacted sand, while the third section lies on a base of cement-stabilised sand. Each prestressed concrete section consists of two slabs of concrete, lying next to each other and each 3.625 m. wide, 100 m. long and 0.12 m. thick. Each slab is prestressed with 60 hard steel wires of 5 mm. diameter.

The initial stress in the wires was about 110 kg./mm.², corresponding to about 30 kg./cm.² in the concrete. The final stress is about 81.3 kg./mm.² in the wires or 22 kg./cm.² in the concrete. The wires were prestressed in pairs in the longitudinal direction and temporarily fastened to a steel frame, which had been installed round the section in construction. This frame was made of pipelines, laid lengthwise along both sides of the section, and of prestressed concrete beams laid transversely at the ends of the section.

The 100 m. long section lies in a curve with a radius of 2,000 m.; this gives a divergence of 0.50 m. The wires are placed as a polygon in the curve. At the places where the wires pass an angle of the polygon they are carried through holes in a steel strip. As the angle distortion was slight so was the sideways force. Transverse welded reinforcement of 8 mm. diameter ribbed steel wires were laid at distances of 10 cm.

The maximum stresses occur at the ends of the slabs for various reasons. The two initially constructed slabs were therefore given secondary reinforcements for a distance of 0.50 m., one in the lower part of the slab and the other in the upper part.

The mesh reinforcement consisted of soft steel wire of 8 mm. diameter, spaced 5 cm. centre to centre. Plate-bearing tests carried out on one of these slabs indicated that this reinforcement was insufficient. Soft steel wire mesh was therefore introduced in the ends of the remaining slabs for a distance of 1 m. and also transverse post-tensioned wires of 5 mm. diameter. The prestressing here is about 10 kg./cm.².

Laying the concrete slabs to a width of 3.625 m. was carried out with the same machines used for laying normal concrete roads. The cement content of the concrete was 350 kg. per cubic metre. In order to avoid shrinkage cracks, a layer of sand, 5 cm. thick, was spread on top of the concrete slab and kept constantly and thoroughly wet. Six days after placing the concrete the pre-tensioned wires near the abutments were cut with a flame-cutter. After that the lateral transverse prestressing at the ends of the slabs could be carried out. The joints between the slabs were filled with a bituminous joint filler.

Control measurements showed a coefficient of sub-grade friction of $f=0.8$ for all sections. Up to the present the prestressed concrete slabs show no defects and give complete satisfaction.

In view of the good results achieved with the 1957 experimental sections, it was decided to make an experimental section of a greater length. This section, about 1,100 m. long, is situated between the Ringvaart (encircling canal of the Haarlemmermeerpolder) and the road to Lisse on the western carriageway of National Road No. 4A. Here a cement-sand stabilised base had already been made, 0.15 m. thick. The section was divided up in slabs, 3.625 m. wide, 0.12 m. thick and 150-175 and 200 m. long.

The greater slab length means greater friction between base and slab. For that reason the final prestressing was increased to 30 kg./cm.². This was done by introducing 36 pre-tensioned wires of 7 mm. diameter in the slab. The wires, more than 1,100 m. long, were pre-tensioned with a jack and temporarily fastened to two rigid abutments at the ends of the section. The abutments consisted of a horizontal reinforced concrete top slab and four vertical slabs buried into the sand embankment.

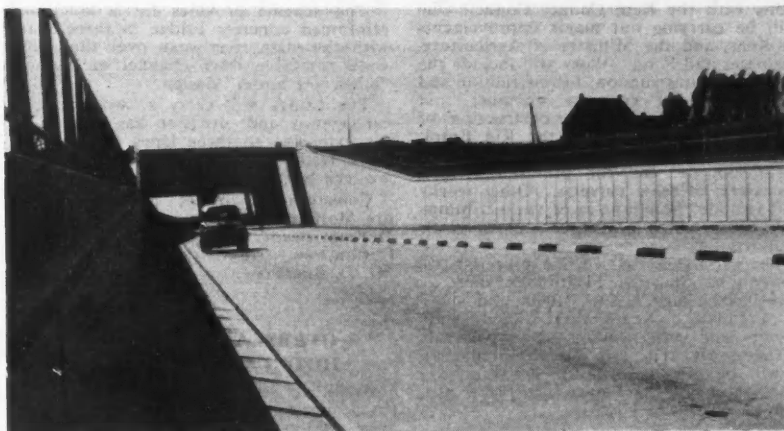
There are a vertical and a horizontal curve in this section. Special precautions were not needed for the vertical curve

during pre-stressing. The horizontal curve has a radius of 1,500 m. and a distortion at the angles of about 23 deg. Just as in the experimental sections laid in 1957, the wires lie in the form of a polygon. Here, however, the distortion at the angles is considerably higher. In order to reduce resistance during the tensioning of the wires at the angles the wires were supported by small cylinders on vertical shafts,

garden city of Osdorp will be opened to traffic. It will be carried over other roads by 10 flyovers and viaducts, a number of which were inspected by the Pavings Development Group. Three of those seen were:—

Bridge No. 386

This recently completed bridge over the Westlandgracht in front of the Suriname-



National Road No. 4A crossed by canal aqueduct

which are fixed between two steel strips. These strips are anchored in a concrete abutment buried in the sand embankment at the side of the road.

The transverse reinforcement and the secondary steel reinforcement in the ends of the slabs were similar to those in the 1957 experimental section. The ends of the slabs were prestressed transversely by post-tensioned wires of 7 mm. diameter.

The concrete surfacing was constructed with the same spreading and vibrating machines used for normal concrete roads. The concrete was covered with sand as soon as possible and kept continuously wet. A few days after the last slab had hardened the wires were cut.

The width of the joints before the cutting of the wires was 0.7 cm., which increased to from 3 to 8 cm. after cutting. Joint filling was with bituminous concrete. An electric road-heating apparatus is installed in part of one of the slabs by way of experiment. The pre-stressing wires are used as conductors of the electric current.

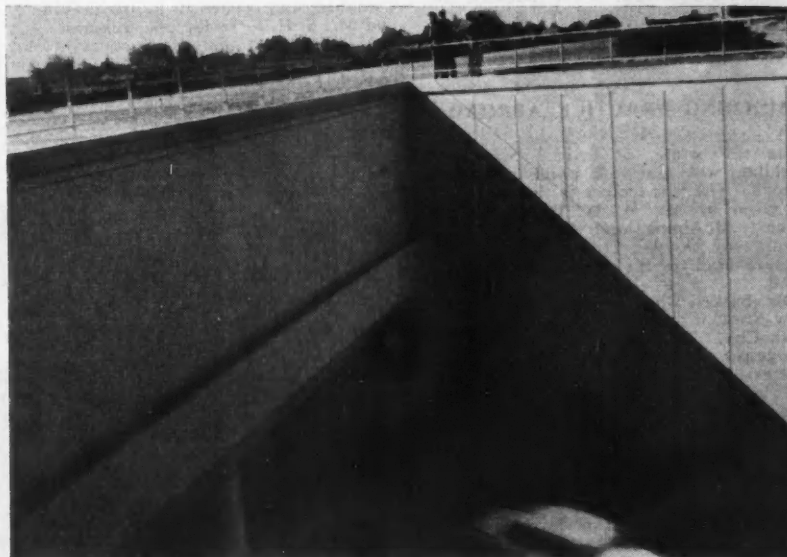
Elevated Road Structures

Next spring a new elevated road from Surinameplein to Meer en Vaart in the

plein is in fact a combination of a bridge and a viaduct, as it not only spans the Westlandgracht but also a foot- and cycle-path on both sides of the water. The eastern subway connects the Postjeskade with the Warmondstraat and the western subway connects two parts of the future Rembrandtpark. Both side-spans are 9.25 m. and the spans over the water are respectively 9.50 m., 11.50 m. and 9.50 m., so that the total length of the bridge is 49 m. The width of the bridge deck is 46.60 m. between the parapets. It is divided into a 13 m. wide tramway, two 8 m. wide carriageways, two cycle-tracks each 5.30 wide and two 3.50 m. wide footpaths.

The bridge deck combines in-situ concrete construction with precast prestressed beams, the in-situ concrete being further supported by concrete slabs between the lower flanges of the beams. The piers and abutments are both of reinforced concrete. The piling consists of 534 reinforced concrete piles, and 127 wooden piles, all with an average length of 16 m.

The abutments and the sides of the bridge deck are clad with light grey tiles, likewise the already existing sewer-pump-
(Concluded on page 1971)



Canal aqueduct

L.C.C. APPROVE £3.6M. FLOOD RELIEF SCHEME

THE Rivers and Drainage Committee of the L.C.C. have approved a scheme, costing £3,605,000, to relieve flooding of the Rivers Ravensbourne, Pool and Quaggy, and their tributaries.

The programme of work will be undertaken in four main stages, the actual programming being dependent on consultations with the Kent County Council who will be carrying out major improvements in Kent, and the Ministry of Agriculture, Fisheries and Food. Work will include the extension, construction, reconstruction and enlargement of concrete channels and culverts, including the reconstruction of the Lee Road culvert on the Kid Brook and the Southend Lane culvert on the Ravensbourne, and the provision, where necessary, of relief culverts. Other works will include the piping-in of various minor tributaries which are at present in earth channels.

The estimated cost of the proposals in London is: Stage 1, £1,015,000; stage 2, £1,240,000; stage 3, £1,135,000; and stage 4, £215,000. Negotiations with landowners and other interested parties will be necessary and it is not expected that it will be possible to complete the programme in less than seven years from the date of starting.

TEMPORARY RESTRICTION ON CIVIL ENGINEERING

"It will be some while before the recent Government measures have an appreciable effect on the overall load of work in the civil engineering industry," stated Mr. P. W. E. Holloway, chairman of the Federation of Civil Engineering Contractors, in Manchester last week.

Mr. Holloway, who was speaking at a general meeting and dinner of the Federation's North-Western Section, pointed out that the load of work in the constructional industries was still at a high level, and said that this would serve to delay the effects of the economic restrictions. There was no doubt, however, that the Government's measures would result eventually in a temporary restriction on expansion in the civil engineering industry.

Mr. Holloway praised the Government's decision to maintain the road programme, and said that he earnestly hoped that they would remain firm in their apparent intention to permit very urgent and essential water and sewerage works to continue.

He stressed that, however necessary the Government's economic measures might have been, the fact remained that a continuous restriction on the work of the constructional industries would have very serious repercussions.

"The main concern of the industry, and of the Federation, therefore, is that the controls should be removed as soon as possible," he added.

BUILDING PRACTICE ABROAD

A special course of lectures, to take place this winter at Brixton School of Building, will deal with building practice abroad. The first lecture in the series will be given by Mr. A. W. Barker, of Sir Robert McAlpine and Sons, Ltd., on Wednesday, October 25, at 7.0 p.m., in the Lecture Hall at the college in Ferndale Road.

Mr. Barker, who earlier this year visited New York, will speak on building in New York City. The limitation of the subject recognises the wide variations of practice that exist in U.S.A. and the close definition has been adopted to focus discussion. Accommodation is limited to 150 places and, although no charge will be made for admission, those intending to be present are asked to apply for tickets to the Secretary of Brixton School of Building.

Further lectures in this series will be given on February 7 and March 7, 1962, when speakers will deal with building in Western Europe.

£2M. SCOTSWOOD BRIDGE PROPOSAL

THE Durham County Council and Newcastle upon Tyne City Council are being asked by the Scotswood Bridge Committee to approve the erection of a £2m. bridge at Scotswood, Newcastle, to replace the existing structure, which was built in 1831.

The scheme provides for a steel and reinforced concrete bridge in three spans with the main river span over the 300ft. wide navigable river channel of through "bowstring girder" design.

The bridge will carry a two-lane dual carriageway and provision has been made for extension to three lanes to carry the extra traffic which is expected when the western by-pass of the city is complete.

Consulting engineers for the project are Mott, Hay and Anderson, of London. Durham county surveyor is Mr. M. W. B. Cotton, and Newcastle city engineer is Mr. D. Bradshaw.

OVERSEAS TOURS FOR HOSPITAL ARCHITECTS

Architects responsible for new hospitals, extensions and improvements in the North West Metropolitan regional hospital board's area are to go on special overseas tours to help keep their ideas fresh and learn new schemes and techniques.

"With the projected building and major reconstruction of hospitals, it is considered of great importance that every opportunity should be taken to study new developments in architecture abroad," says the board's Establishment Committee in a report on research study travel.

The study, it says, will be not only from an aesthetic point of view, but also to learn of new structural techniques employed both in hospitals and on other kinds of building.

The Committee says it is believed that there is a great deal to be learned from Germany, Switzerland, France, Italy, Spain, Belgium, Holland and the Scandinavian countries, as well as possibly the Eastern Mediterranean countries such as Israel.

B.C.B.I. ANNUAL DINNER

"Poor Response to Appeal"

The annual dinner of the Builders' Clerks' Benevolent Institution was recently held at the Cafe Royal, London, with the president, Mr. A. Raymond Mais, in the chair.

The toast to "The Institution" was proposed by Major-General Sir A. Douglas Campbell, and replied to by the president, and Mr. S. H. F. Pulley, the treasurer.

Mr. Mais said that the finances of the Institution needed some careful examination. There had been a poor response to his appeal, and to that of his predecessors, from building firms. Were it not for merchants and suppliers, and the professional friends of the Institution, its finances would be in poor shape. He was surprised that contributions in 1960 were under £1,300.

TENDERS FOR ALBERT EMBANKMENT SUBWAYS

The L.C.C. are inviting tenders from selected contractors for the construction of pedestrian subways under the Albert Embankment, Lambeth. These will be opposite Lambeth Bridge House and under the eastern end of Lambeth Bridge. The repair of the river wall is also included in the contract.

Temporary bridging will have to be provided over the excavations so that traffic may flow freely while works are in progress; this will cost about £4,000. The cost of the whole works is estimated at £88,250.

Late Construction News

TEES-SIDE OIL REFINERY.—I.C.I., Ltd., are to place a contract with Kellogg International Co., Kellogg House, 62-72 Chiltern Street, London, W.1, for the construction of a crude oil distillation plant and facilities on the North bank of the River Tees.

£1½M. HANGAR CONTRACT.—B.O.A.C. have awarded a contract, worth about £1½m., to W. and C. French, Ltd., 50 Epping New Road, Buckhurst Hill, Essex, for the extension of their wing hangar at London Airport. Work will commence shortly. The consulting engineers are Frederick Snow and Partners, 144 Southwark Street, London, S.E.1.

SHAKESPEARE CENTRE.—Work will commence in about seven weeks on the erection of a new Shakespeare centre at Stratford-on-Avon for the Trustees of Shakespeare's Birthplace. The building will include a library, administrative headquarters and study centre, and will cost about £100,000. Higgs and Hill, Ltd., Coventry, are the main contractors. Plans have been prepared by Wood, Kendrick and Williams, 57 Colmore Row, Birmingham, 3. The quantity surveyors are Silk and Frazier, 35 Portland Road, Birmingham, 16, and the mechanical consultants are Hoare, Lea and Partners, 23 St. James Road, Birmingham, 15.

LONDON SHOWROOMS AND OFFICES.—Myton, Ltd., Western House, Western Avenue, London, W.5, have been awarded a contract valued at over £100,000 by Kingsmere Investment Co., Ltd., to build a block of showrooms, offices and flats at 11-15 Arlington Street, London, S.W.1. The architects are R. Seifert and Partners, 34 Red Lion Square, London, W.C.1. Work on the five-storey reinforced concrete framed building has just begun and is due for completion by next September.

REFUSE DISPOSAL PLANT.—Birmingham City Council have been recommended to accept the £373,159 tender of Heenan and Froude, Ltd., Worcester, for supplying the plant and erecting the chimney of a new refuse disposal and salvage works at Castle Bromwich. Building and civil engineering work on the plant are estimated to cost £657,450.

HEREFORD WIRE MILL.—The contract for the stage 3 of a new wire mill at the Hereford factory of Henry Wiggin and Co., Ltd., has been awarded to Robert M. Douglas (Contractors), Ltd., 395 George Road, Birmingham, 23. Worth £419,000, the contract covers the erection of the superstructure of the building. The consulting engineers for the scheme are W. S. Atkins and Partners, 158 Victoria Street, London, S.W.1.

11-STORY FLATS.—The tender of George Wimpey and Co., Ltd., Hammersmith, London, W.6, at £178,278, has been accepted by Bristol City Council for building an 11-storey block of 62 flats, with laundry, stores and boiler house, at Summerhill Road, St. George.

PORTSMOUTH HOUSING.—Portsmouth Health and Housing Committee have recommended acceptance of the £332,747 tender of Howe and Bishop, Crown Buildings, Clarendon Road, Portsmouth, for the erection of 160 dwellings and 34 garages at Prospect Farm, Leigh Park.

DRAPER STREET SITE.—Selected contractors are now being invited to tender by the L.C.C. for the development of the Draper Street site, Elephant and Castle. The contract will include the erection of a 25-storey block and two six-storey blocks of dwellings, a day centre, public house, post office, shops, etc. Plans are by the L.C.C. staff, and the quantity surveyors are Harry Trinick and Partners, 11 Old Queen Street, London, S.W.1.

HARLOW DWELLINGS.—Harlow Development Corporation are inviting tenders from a short list for the erection of 289 dwellings—houses, bungalows and flats—at Area 66, Willowfield. The bids are due in early next month. The Corporation's own staff prepared plans. Langdon and Every, 21 Russell Square, London, W.C.1, are the quantity surveyors.

PLANNED DEVELOPMENT OF WEXHAM SPRINGS RESEARCH STATION COMPLETED

TWO new buildings have recently been added to the Research Station of the Cement and Concrete Association at Wexham Springs, Buckinghamshire. This makes a total of six new buildings since the Association took over the grounds in 1949, and completes the planned development of the Research Station. The aim has been to achieve a related group of buildings, designed and built at different times and for various purposes, with careful attention to the arrangement of space between.

The first of the new additions is the Materials building which has some particularly interesting wall treatments of concrete blocks. The structure is L-shaped on plan, two storeys high, and is approached from two sides through paved and planted courtyards; these have been specially landscaped.

The building is planned with laboratories in the longer wing and offices in the shorter. A hallway links the two elements, penetrating the building to join the courtyards on either side. The laboratories are arranged to avoid direct sunlight and mostly face north, except for a few where this was not an important consideration.

Construction

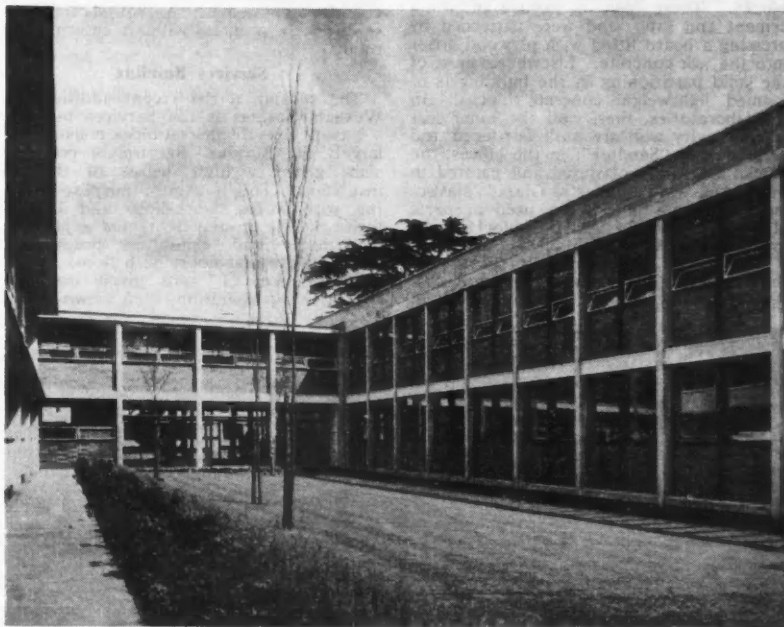
The structure is of in situ reinforced concrete, with flat slab floors supported by reinforced concrete columns. There are no beams except where special conditions make it necessary. Columns are spaced at 11ft. 5in. centres longitudinally and 16ft. 6in. transversely. The walls to the lift shaft and moist curing room are of in situ concrete. External walls are of concrete block cavity construction with an inner leaf of foamed lightweight concrete blocks.

The treatment of the facades provides an interesting study in concrete finishes. The main areas of walling are faced with split silver-grey concrete blocks made with

ordinary Portland cement and Cornish de Lank granite. The blocks are rough in texture with a slight sparkle given by the granite. As a contrast to this treatment, the panels below windows are faced with

block are hydraulically pressed and are nominally 16in. x 4in. x 4in. thick, laid with a $\frac{1}{2}$ in. joint. The mortar mix in each case was carefully chosen for colour.

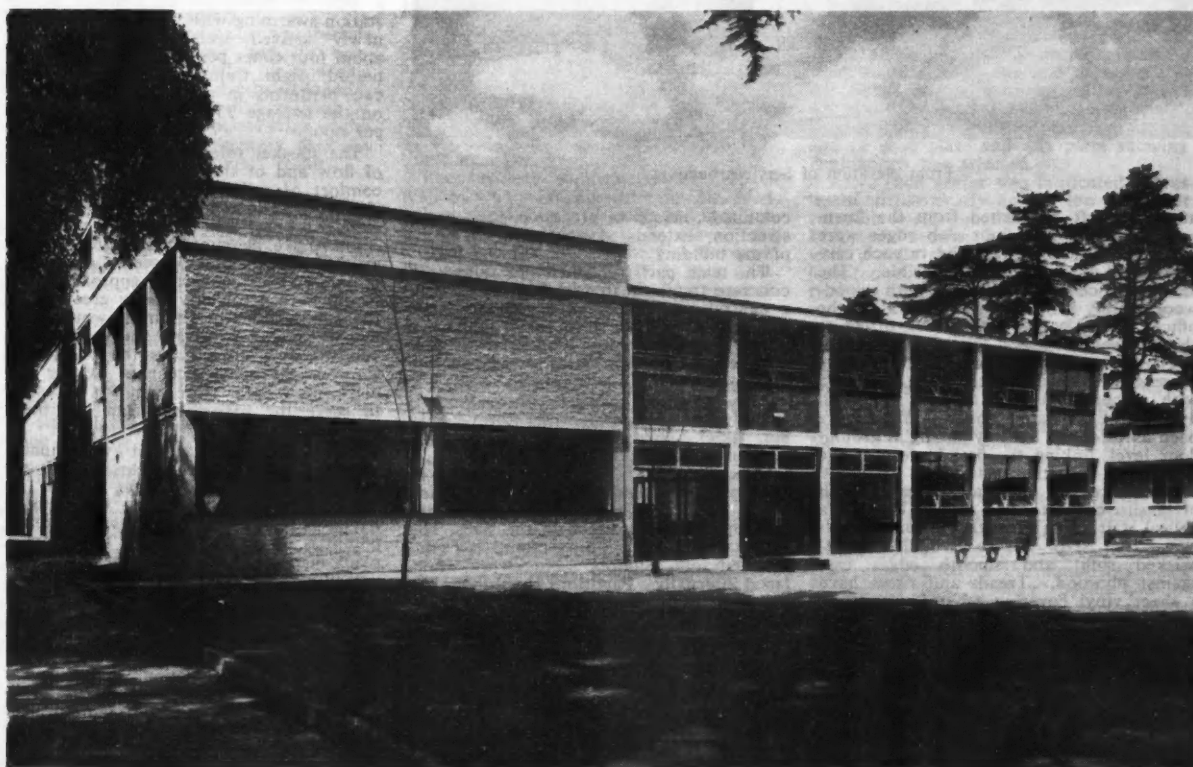
Further interest is added to the external



Rear elevation of Materials building, showing sawn blocks beneath the windows

smooth sawn concrete blocks of deep charcoal grey. These are made with black cement and black Clatchard whinstone aggregate, enlivened with a slight sprinkling of Cornish granite. Both types of

finishes by the treatment of the in situ concrete. At first floor level, a white edge beam, cast with white cement and Derbyshire Spar aggregate, is bush-hammered; the in situ concrete parapet



Front elevation of Materials building, showing use of sawn and split blocks

extending round the laboratory wing was cast against rough sawn boarding to give the concrete a pronounced surface texture. In the laboratory wing, concrete mullions to windows were cast with black cement and Shap granite aggregate, and the surface treated with two coats of a transparent sealer.

Internal Finishes

Internally, the concrete block treatment is continued into the entrance hall which is faced with profiled vertically-grooved blocks. These have a surface of white cement and sand, and were patterned by pressing a board fitted with plywood strips into the wet concrete. Elsewhere, most of the solid partitioning in the building is of foamed lightweight concrete blocks. In the laboratories, these and the inner leaf of the cavity wall are built fair-faced and painted with "Sandtex"; in the offices, the blocks are thinly plastered and painted in the same way. "Spectra-Glaze" plastic-faced concrete blocks are used in parts of the lavatories. All the blocks used internally are 8in. x 16in. on the face.

The in situ concrete walls to the lift shaft and moist curing room were cast against narrow wrought vertical boarding,

changeable. Service piping in these areas is left exposed for easy access.

The ground floor laboratories and three on the first floor are all air-conditioned; the latter—used for work on shrinkage and creep, and cement tests—are designed for specially close temperature and humidity control. In the remaining laboratories, a constant temperature of 60 deg. \pm 2 deg. F. is provided with a 65 per cent. relative humidity. In order to avoid disrupting these conditions, partitions between the laboratories and corridors are glazed so that visitors can see work in progress without entering the rooms.

Services Building

The second of the recent additions at Wexham Springs is the Services building—a two-storey, T-shaped block constructed largely of "Siporex" lightweight concrete slabs giving a high degree of thermal insulation. This is a multi-purpose building with stores, workshops and laboratories on the ground floor, and a printing department and exhibition preparation space on the first floor; both floors at the head of the "T" are given over to aggregate preparation. A two-storey

a thin coating of plaster, or with emulsion paint applied to the plaster.

Owing to the insulation properties of "Siporex," the minimum amount of heating units are required. A low-pressure hot water system is used, with coils and main at high level on the ground floor supplying radiators and coils on the first floor.

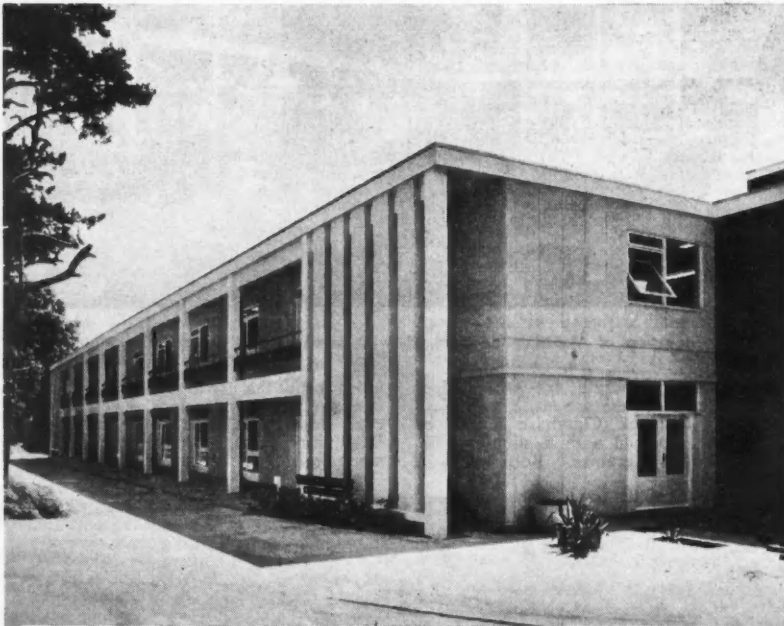
Architects and Contractors

Architect for the Materials building was W. R. Oram, A.R.I.B.A.; landscape design, Bryan and Norman Westwood and Partners; main contractors, William Hartley and Sons (Wexham), Ltd.; reinforced concrete contractors and engineers, Truscon, Ltd.; concrete facing blocks, Atlas Stone Co., Ltd.; profiled concrete blocks and paving flags, Tarmac, Ltd.; lightweight concrete blocks, Thermalite, Ltd.; "Spectra-Glaze" concrete blocks, Atlas Stone Co., Ltd.

Sub-contractors also included: Roof screed—Celcon, Ltd.; sprayed plaster work—Kendells Stone, Ltd.; air-conditioning, heating, plumbing and electrical installation—Matthew Hall and Co., Ltd.; steel windows—Henry Hope and Sons, Ltd.; sanitary fitting—Adamsez, Ltd.; door furniture—A. J. Binns and Co., Ltd.; lighting fittings—Fluorescent Applications, Ltd., and Atlas Lighting, Ltd.

Architect for the Services building was: H. Stanley Smith, A.R.I.B.A.; contractors, Richard Costain (Construction), Ltd.; "Siporex" slabs, Costain Concrete Co., Ltd.

Sub-contractors included: Heating and h.w. plumbing—Matthew Hall and Co., Ltd.; shutter gates—Bolton Gates, Co.; steel and reinforcement—E. J. Cook and Co.; hoist—J. and E. Hall; timber windows and doors—Rippers, Ltd.; painting—Kings B.D.J.; floor finishes—Accoflex Tiles; balustrade—H. and C. Davis, Ltd.; roof covering—Rock Asphalt, Ltd.



Front elevation of Services building

and were left untouched from the form-work; columns and floor slab edges were treated in a similar way, and in each case the board-marking is just visible. The laboratory ceilings are lined with wood-wool, mainly for sound absorption; in the offices, acoustic tiles were stuck direct to the slab soffits.

The floors in the laboratory wing have a granolithic finish; office floors are paved with thermoplastic tiles. Standard hydraulically pressed concrete flags have been used for the hallway paving at ground floor level, linking the paved areas of the courtyards on either side.

There are two internal staircases, both of in situ concrete, and one of these is a helical stair rising through the central hallway. The stair has a radially board-marked soffit and smooth edges cast against plywood. Treads and risers have a sheet vinyl covering which were stuck direct to the concrete; nosings are of the same material, matching in colour. Externally, there is another helical stair for escape purposes, constructed of precast concrete treads round an in situ concrete newel, with an in situ landing at first floor level.

Benches and bench fittings in the laboratories are of purpose-made joinery, standardised as far as possible to be inter-

columnnade, mostly of precast concrete construction, extends along the north front of the building.

The main part has an in situ reinforced concrete frame up to first floor level, with a central line of columns; the latter are carried up to roof level and support a spine beam. The first floor slab is constructed of "Stahlton" prestressed concrete units spanning 20ft.

The remainder of the construction is entirely of "Siporex," with storey-height 8in. thick slabs forming the external cladding. In the upper storey these are load-bearing and support a roof of "Siporex" slabs laid to falls and spanning 20ft. 5in.; the roof is finished with "Flexophalte" laid direct on the slabs. The aggregate preparation section is constructed of "Siporex" blockwork, fair-faced internally. Partitions throughout the building are of non-load-bearing "Siporex" slabs, 4in. thick.

The external slabs of the main block are sprayed with "Sicrol U" waterproofing agent, light blue in colour. This contrasts with a deep terracotta rendering on the external walls of the aggregate preparation section.

Internally, the walls in the main part of the building are treated with "Sandtex"—either applied direct to the slabs or to

(Concluded from page 1962)

be spent to do it; and he was also sure that the underground system would always be required.

Converted Approach Tracks

BRIGADIER T. I. LLOYD referred to a photograph in Mr. King's Paper showing a pair of platforms at London Bridge station swarming with passengers from two newly arrived trains. That happened about four times per hour during the peak period; eight trains could arrive at the two platforms in an hour, each carrying on the average 750 passengers, i.e., 6,000 per hour.

The speaker referred to the unevenness of flow and of the low capacity and discomfort of railway trains, and said that if the two tracks serving the two platforms were converted into a road, the passengers could arrive in comfort in motor coaches at the rate of one 50-seater every half minute. The converted approach track would have a capacity vastly greater than the 120 vehicles per hour; it would leave ample room for private and commercial vehicles as well, and, as the photograph showed, the space occupied by the two platforms was far more than was necessary to serve the passengers from two buses per minute.

He ventured to urge that every municipality should look very closely into the usefulness of the railways within its boundaries, which would be found to be trivial as compared with the vastly greater potential usefulness of those same routes, ready-made virtually, once they had been turned into roads.

MR. LANGFORD, Unilever, Ltd., pointing to the statement in Mr. King's Paper that, for freight, larger containers would be adopted, taking advantage of lightweight materials for construction, said this was of considerable importance, since the railways were trying to secure more freight traffic. Bearing in mind that road vehicles could shift loads in 15/16-ton lots, he asked if the railways had in mind comparable loads.

WORK STARTS ON TWO-MILE LACEBY BY-PASS

Largest Road Scheme in Lindsey for 30 Years

THE ceremonial "cutting of the first sod" was recently carried out at Laceby, Lindsey, to herald the start of work on the construction of Laceby By-pass, on the Grimsby-Scunthorpe-Sheffield Trunk Road, A.18.

This is the largest highway improvement undertaken in Lindsey since a six-mile section of A.18 between the West Riding boundary and Keadby Bridge was built by direct labour nearly 30 years ago.

The two-mile scheme comprises a roundabout at Laceby crossroads based on a 150ft. diameter island with incidental work on the approaches from A.46 and B.1431; a dual carriageway by-pass 1½-mile in length, which includes a new bridge over Laceby Beck; and the continuation of the same on the general line of the existing road to link up with the dual carriageway road constructed by Grimsby Borough a few years ago up to its boundary.

Carriageways will be 24ft. wide, with flush haunches flanked by hard shoulders. Both the central reservation and the verges vary in width but the minima are 15ft. and 14ft., respectively. As there is a full complement of mains and cables within the existing highway, considerable forethought, labour and expense will be called for in dealing with them.

The bridge will be a straightforward reinforced concrete structure of 15ft. span with 6½ deg. skew, the deck being carried on abutments.

The curves will be of the order of 6,000ft. radius with the exception of one of 2,200ft. linking the new with the existing road at the borough boundary.

The agricultural land through which the new road will run presents no difficulties apart from the boggy bed of the stream to be bridged. The sub-soil is a glacial deposit consisting of medium to light clays and silt in the main with occasional pockets of sand and gravel. That being so, both the type of soil and its moisture content vary irregularly and rapidly.

On the whole the load-bearing properties of the ground are poor and, in consequence, the design includes for extensive drainage works and such depths of foundations as the C.B.R. tests may indicate to be necessary at the appropriate stage of the earthworks, because preliminary tests on borehole samples gave erratic results.

Road Construction

From the choice available, within range, of slag, chalk and gravel for the road foundation, the latter has been specified and arrangements made to utilise a local deposit of suitable grading for a "flexible pavement."

After optimum compaction of the sub-grade, such a thickness of sandy gravel, "as dug," will be spread over the formation and thoroughly compacted in layers to provide a sub-base that will produce with the base and surfacing superimposed the strength calculated to be required to bear the vehicle loads to be expected on this route.

With a running surface of hot rolled asphalt, 4in. in thickness, laid on an 8in. thick base of gravel stabilised with cement, it is anticipated that the sub-base will need to be a foot or more in thickness. Thus the total constructional depth may exceed 2ft. over some sections of the road.

The quantities involved in the scheme are: Excavation—100,000 cu. yd.; carriage-way area—75,000 sq. yd.; road making materials—85,000 tons; drainage (6in. to 48in.)—seven miles; underground services to be dealt with—nearly four miles.

The stipulated completion date is 15 months from the formal acceptance of the tender on August 21. The accepted tender from Clugston Civil Engineering, Ltd., Scunthorpe, was £357,000. Moving and re-laying underground services is expected to exceed £20,000.

Plant

The major items of plant proposed to be employed are: Two D.8 and one D.7 bulldozers for earthmoving, with trenching machines of types required for the drainage works.

A 42B Gyra concrete mixer of 1 cu. yd. batch capacity and an output potential of 400 cu. yd. per day, with associated gravel storage bins, 30 tons capacity cement silos and conveyor to a 4 cu. yd. wet hopper, for the production of the cement stabilised base and concrete generally.

A Blaw Knox P.F. 90 Paver laying the sub-base and base and finally the running surface.

German "Scheid" tandem rollers, with vibrating attachments, for general consolidation.

The engineers directly responsible for the work, under the county surveyor, C. K. Tallack, M.I.C.E., M.I.Mun.E., and the contractor respectively, are:

Mr. P. E. Haines, A.M.I.C.E., assistant county surveyor (improvements), and Mr. R. G. Goodwin, B.Sc., director and contracts manager.

The resident engineer is Mr. W. G. Walker, who, with his assistant, Mr. M. J. Askew, worked up the scheme, specification and quantities and so have been seconded to the site to supervise the work. The site agent is Lt.-Col. D. J. Bell, B.Sc., assisted by engineer, Mr. L. T. Bohn, and assistant engineer, Mr. P. B. Wilson.

SPECIAL WELDING TECHNIQUES ON CRANE GANTRY

EXACTING requirements involving special welding techniques were called for in work recently undertaken at the West Bromwich works of Braithwaite and Co. Structural, Ltd., for the Steel Company of Wales, Trostre.

The work entailed the fabrication of plategirders for steelwork crane gantries to the design of W. S. Atkins and Partners, consulting engineers, London. The plate girders are 40ft. long and are made up with ½in. thick web plates, 32in. by 1½in. thick top flanges and 18in. by 1½in. thick bottom flanges. Both flange plates are of N.D.I. steel.

The Specification

The specification called for a full penetration butt weld between the web and top flange together with ½in. reinforcing fillets. These fillets were to merge smoothly with the web with flat or slightly concave throats to give minimum stress concentrations across the welds. The bottom flange welds were of the normal ½in. fillets.

It was also specified that the web to flange welds should be automatically welded with no stops along the girder length giving ripple-free welds with no stop and start bumps or craters, as would be experienced with hand welding. This procedure ensures that no undesirable stress raisers are present.

The girders were welded with the webs horizontal and two fillets deposited simultaneously one on each flange to the web, using a gantry type submerged arc welding machine.

This method of welding, in which the welds are balanced either side of the neutral axis of the girder, was developed by the company to give no resultant vertical camber to the girder due to longitudinal shrinkage. Flange plate angular distortion due to the transverse shrinkage of the longitudinal fillet welds was allowed for by transverse pre-sets to the plates put in prior to assembly.

Ground Clean

To achieve porous free submerged arc welds, flange and web plate weld zones and web edges were ground clean and inspected.

Experience with N.D.I. steel plates has shown that these may be prone to laminations starting from one end of the plate. All flange plates were therefore tested ultrasonically with a 2½ Megacycle rough surface lamination probe for 2ft. at the end of each plate and any plate showing laminations was rejected.

After each girder was fabricated it was tested ultrasonically on the top flange for complete weld penetration. For this a 5 Megacycle receiver and transmitter probe with a split perspex shoe was used with longitudinal wave propagation. Discontinuities as small as 1/32in. were recorded using this probe on laboratory test pieces.

(Concluded from page 1967)

ing machine that is situated on the south-east side of the bridge, thus bringing it in line with the bridge design. There are four staircases for pedestrians, of reinforced concrete construction with precast units. At the moment the water in the Westlandgracht is still at its original polder-level, so that the bridge is standing rather high on its "legs." This, however, will change as soon as the banks of the canal have been built and the water has been brought to town-level. The bridge's clearance above the water is 2.88 m.

Bridge No. 705

This viaduct, of a total length of 102 m., crosses the Johan Huizingaplan in the centre of the garden city of Slotervaart. The great length of this viaduct is necessitated by the Cornelis Lelylaan joining up here with the Johan Huizingaplan by means of an oval roundabout.

The reinforced concrete deck is carried

by six rows of four V-shaped supports and by the abutments. There are five spans of 15.30 m. and side spans of 12.75 m. On the abutments, the bridge deck rests on precast reinforced concrete roller-bearings. Both the middle rows of piers are supported at street level by hinge bearings. These are the fixed points of the construction. The other supports are all provided with roller bearings. The piling consists of 436 reinforced concrete piles, each 13.50 m. long.

In each of the abutments there are three shops which enliven considerably the big space under the viaduct. The shop windows and aluminium showcases have been built about 0.40 m. out from the walls. They form a gaily illuminated row and light the pavements. The bridge deck, with a width of 32 m., has again a tramway in the middle, 11 m. wide, with dual carriageways each 7.25 m. wide, and a cycle-track.

At the time of construction it was not

known if and when the tracks of the tramway would be laid, but two staircases in the western abutment were allowed for, for a future tram stop.

Bridge No. 717

This viaduct carries the motorway over the connection between the Hemsterhuisstraat and the Louis Bouwmeesterstraat. Footpaths run through tunnels which have been constructed in the abutments. For the bridge deck "Preflex" beams and in-situ concrete are used. The factory-made "Preflex" beams consist of a section of high tensile rolled steel with a concrete lower flange. Piling consisted of 222 prestressed concrete piles with an average length of 12 m.

The bridge has a span of over 16 m. and a total width of 38 m. The visible concrete surfaces have been given a rough texture and painted; the pedestrian tunnels are painted in a darker colour to give an impression of greater space.

John Sumner's Notebook . . .

THERE are in this country about 12,000,000 houses and domestic properties. According to Mr. Henry Brooke, the former Minister of Housing and Local Government, not less than 3,000,000 of these are soundly built and can be transformed into modern, comfortable homes that will last for many years if they are properly taken in hand and if modern amenities are installed, such as a proper hot water supply or a bathroom or indoor w.c.

The rate of population increase and the insistent demand for higher living standards make it vital that the necessary work on these houses (most of them are of the terrace type) should be carried out at the earliest possible moment, otherwise the contribution they could make to our stock of modern homes will be lost.

About 140,000 of these houses are being improved or converted annually with the help of improvement grants under the Housing Acts—a figure greatly in excess of the annual total a few years ago mainly because of the provisions of the House Purchase and Housing Act of 1959.

I imagine that the feature about these applications for grants which is giving most trouble to the Ministry, which is naturally as anxious as anybody to ensure that these houses are improved, is the fact that less than one third of all the grants made to private owners have been to landlords of rented property. One reason for this is probably that the permitted rent increase—8 per cent. of the landlord's share of the cost of improvement—has not been enough to persuade landlords to take advantage of the grant scheme.

I have good news for those landlords who feel this way, for the Housing Bill now before Parliament contains provision for putting up the permitted rent increase to 12½ per cent. The Bill should be on the Statute Book any day now and I hope that many more landlords will, in consequence, avail themselves of the grant aid to which they are entitled.

One thought occurs to me. There must be many maintenance and repair firms throughout the country whose work programme for the early part of the New Year and beyond is at present looking a bit thin. I would suggest to them that they get in touch with the owners of rented property in their localities with a view to getting their fair share of the modernisation work which the new Act should encourage more property owners to put in hand.

Vindicated?

FROM older properties to newer ones. The Government's announcement that some detached aluminium bungalows erected between 1949 and 1951 are suffering from corrosion and are to be written off over the next 10 or 12 years has naturally caused a certain amount of eyebrow elevation in building circles. The cause of the trouble is that the aluminium alloy used in the manufacture of the structural members of the bungalows was of a high strength, copper containing variety. According to a Government circular, experience has shown that this particular alloy is liable to a form of laminar corrosion which, once it has begun, spreads rapidly and ultimately destroys the metal. Understandably enough these disclosures aroused much anxiety on the stability of aluminium for building purposes, but according to Dr. E. G. West, the director of the Aluminium Development Association, the bungalows were made of a low grade aluminium alloy salvaged from crashed and obsolete aeroplanes. In building today, he says, only aluminium up to British Standard specifications is used.

This will be reassuring to many in the industry, particularly as this specific mis-

take means that the local authorities concerned will receive appropriate relief from the financial consequences of the premature deterioration of these aluminium bungalows, which they erected in expectation of a 60-year life; quite a considerable sum is involved.

The real lesson, however, of this unfortunate business is that materials were used for building purposes regardless of the absence of any practical experience of their suitability for the purpose. Admittedly, the general conditions under which they were used were particularly difficult in that the period between 1945 and 1951 was one during which the building industry suffered a chronic and crippling shortage of materials of all kinds. Nevertheless, the attitude of mind towards new materials which results in building contractors often being criticised for being old-fashioned and conservative in their outlook seems to be vindicated by this occurrence.

Housing Programme

AS this seems to be a week in which housing news is very much to the fore I propose to continue with the theme. I see that the pressure being maintained on local authorities, and the attitude of some of them to green belts by the Ministry of Housing and Local Government, continues. Mr. J. R. James, the chief planning officer to the Ministry, mentioned in London the other day that in his view a target of 5,000,000 new dwellings in England and Wales over the next 20 years was "the most modest figure we should aim at." As I doubt whether anybody is in a better position to assess the overall picture on housing throughout the country than Mr. James this is a forecast to which some weight must be given.

Mr. James then proceeded to show that a certain demand for another 500,000 new houses would be required in and around London and he pointed out that in the areas around green belts where land was so precious there would be a need to build at greater density. This land must not be squandered "by developing it at two, three or four houses to the acre."

Five million houses in 20 years—or 250,000 houses a year—is a very conservative estimate of this country's requirements. Mr. James himself describes it as a "modest" estimate, but other students of the housing situation are quite convinced that 350,000 a year for at least 10 years to come are needed. The question is can the building industry cope with that higher figure and can the materials manufacturers step up their production to keep the higher demand satisfied?

Mr. R. Graham Page, the Conservative M.P. for Crosby, has poured scorn on even Mr. James' lower estimate, suggesting that it is "nonsense." In Mr. Page's view the 5,000,000 houses must be built in 10 years. Now Mr. Page is the chairman of the Conservative Members' Housing Committee and as such one would expect him to display a little more knowledge on the subject than is indicated by this ill-considered outburst.

Does he not know that among the reasons why the housing programme is steadily falling away at the present time is the shortages of materials, particularly of bricks, which have been notably acute in most areas? Does he not know that house-builders are battling daily with the problem of acquiring land suitable for development? Does he not know that the financial stringency under which banks, building societies and house-builders are operating make it daily more difficult for house-builders to finance their building and for purchasers to find the money and buy? To a greater or lesser

extent the same problems are with the local authorities in their housing programmes. If there are difficulties in sustaining the present annual programme between 250,000 and 300,000 houses how much more difficult would it be to sustain a programme of 500,000 houses a year as Mr. Page envisages.

Perhaps Mr. Page would be good enough to tell me and the house-builders of the country (a) how they can get the increased quantities of materials required; (b) what steps he proposes to take with local authorities to release more land for housing; and, (c) what arguments he would consider putting now to the Chancellor of the Exchequer to ease the financial position so far as it affects house-building.

Resolution Defeated

THERE are one or two points arising from recent Labour Party gatherings which seem to call for comment. The first is that the executive's policy statement, "Signposts for the Sixties," was approved at the Blackpool conference. I do not want to go over the ground covered in this somewhat arbitrarily worded document but will content myself with drawing the attention of my readers to the fact that a resolution calling for public ownership of land and a wide range of industries (including the building industry and building societies) was defeated by 4,531,000 to 1,611,000—a margin which is big enough and decisive enough to suggest to many that a large part of the contents of "Signposts for the Sixties" may well be redundant so far as the bulk of opinion within the Labour Party is concerned by the time the next General Election comes along.

Mr. Gaitskill, whose personal triumphs at Blackpool have been widely approved, later had a word to say about the possibility of a return to general building controls under a Labour Government. "I do not think it is necessary," he said. That should cheer the hearts of my readers.

"Reward for Merit" Scheme

I SEE that my old friend Mr. R. G. Carter, M.M., J.P., F.I.O.B., the head of R. G. Carter, Ltd., of Drayton, Norwich, is still full of ideas for maintaining the personal touch within his firm, despite the fact that it is still growing week by week and month by month.

It is over 40 years since Mr. Carter started his building business from scratch; it is now one of the largest, indeed it may well be the largest, in East Anglia. Keeping in touch with all his employees—and I can remember the day when he prided himself on knowing everyone by name—has become increasingly difficult in more recent times. Many of Mr. Carter's colleagues of younger years would, I feel, be tempted to give up the problem, but not he. He proposes to introduce a "reward for merit" scheme, based on years of service. This scheme, which it is hoped to introduce by Christmas, is confidently expected to supplement the other arrangements already existing within the firm to maintain close links between the management and employees.

Carter's have probably just completed its busiest year on record, a year which includes a £1½m. contract at Kings Lynn—a factory for Campbell's soups. With a man of Mr. Carter's calibre at its head I am convinced that this firm can confidently look forward to even bigger successes in the future.

LOANS SANCTIONED

During the quarter ended September 30, 1961, the Minister of Housing and Local Government sanctioned the following loans to local authorities in England and Wales:—Housing (land, dwellings, roads, sewers, etc.), £67,235,698; advances under Housing and S.D.A. Acts, £31,955,339; grants under Housing Acts, £4,240,017; sewerage and sewage disposal, £12,584,660; water supplies, £6,603,526; highways, £4,353,472; public lighting, £1,834,551.

FOREMANSHIP TRAINING REPORT

N.F.B.T.E. Council Approves Recommendations

THE Management Training Committee has prepared a report, for the N.F.B.T.E. Council, on foremanship training because it believes that there is an urgent need to improve the quality and efficiency of the supervision of building projects; that this can be achieved only if building firms are aware of, and support, the courses which are available and take an interest in the efforts being made to improve training for site supervision.

The full text of the report is as follows: When the National Advisory Committee for the Training of General Foremen invited the City and Guilds of London Institute to co-operate in the introduction of a course and examination in general foremanship studies, it was estimated that at least 350 men would require to qualify each year if the industry's needs were to be met. It was, of course, expected that it would take some time for the numbers entering for this new examination in foremanship studies to build up, but the Committee must express its disappointment at the slow rate of progress which has been made. In the six years since the examination has been held there have been 306 candidates, the greatest number in any year being the 77 candidates for the 1961 examination.

Position has Improved

The Committee appreciates that the condition that candidates for the foremanship course must either hold an Ordinary National Certificate or take a special preparatory course in building construction may have deterred some potential general foremen from entering the course. Following the revision of the City and Guilds craft courses, and in particular the course preparing for the Full Technological Certificate which now covers building construction and craft foremanship studies, the position has improved. Those who obtain

the Full Technological Certificate will no longer require to have an Ordinary National Certificate to qualify for admission. The syllabus for the general foremanship course is also being revised. These revisions, however, cannot of themselves increase the number of candidates taking the course and examination. This can be achieved only if employers will encourage suitable men to enter. The Committee hopes that more firms will give the necessary support and encouragement.

The Committee would like to make it clear that these courses are not intended solely for candidates who originally entered the industry as craft apprentices. It is true that when foremanship courses were introduced immediately after the war the emphasis tended to be on training craftsmen who had shown ability to supervise building work. The regulations for the certificate course in general foremanship studies make it quite clear, however, that entry is open to those who have satisfactorily completed their basic training, with related technical education, in the building industry *either as craftsmen or in administrative positions closely concerned with site work.*

With the increase in the numbers of boys staying on at school to take the General Certificate of Education, it is reasonable to assume that an increasing proportion of general foremen will, in the future, be recruited from those who enter the industry on the administrative side and study for National Certificates in Building.

Existing foremanship courses normally involve attendance at evening classes for two years. Compliance with this requirement has been difficult for some candidates and it has probably deterred others from entering. Owing to the nature of their employment potential general foremen may not be sure of remaining for two years within reasonable travelling distance of a technical college. Even where they do

they may find it too strenuous to do all their preparation in the evening after a full day's work.

Other Methods Possible

The Committee wishes therefore to point out that other methods of organising the course are possible and have been tried out successfully. It commends in particular the course at the Birmingham College of Technology, where, by arrangement with the employers, the students are released for one afternoon a week and continue their studies on the same evening. It wishes to draw attention also to the block release course organised by the London Master Builders Association and the Brixton School of Building, which involves full-time attendance for two periods of a fortnight each for two years.

Recommendation: The Committee invites the Council to ask Regional Federations:

- to examine the provision and organisation in their Region of courses preparing for the certificate in general foremanship studies,
- to take whatever action may be required to improve this by the introduction of block release courses for candidates not able to attend evening classes regularly and/or by the provision of courses involving day-time attendance,
- to encourage members to assess their future requirements for foremen and select suitable employees, whether trained on the craft or administrative side, to attend a course in general foremanship studies.

The Council of the N.F.B.T.E. has given its approval to the report.

GOODENOUGH GROUP EXPANSION

Goodenough Pumps, Ltd., 112 Jermyn Street, London, S.W.1, have acquired a controlling interest in Silas Hyde, Ltd., Birmingham. Mr. F. G. Goodenough has joined the board of Silas Hyde as chairman and joint managing director, and Mr. K. F. Goodenough, B.Sc., A.C.G.I., as director.

RAPID CONSTRUCTION OF BOURNEMOUTH FACTORY AND OFFICE BLOCK

A FACTORY and office block development at West Howe, near Bournemouth, costing over £300,000, has been completed in nine months.

Built for Aerograph DeVilbiss by Richard Costain (Construction), Ltd., it involved an extension to one side of an exist-

ing factory and an office block on the other, giving a single building, 550ft. long by 170ft. wide. The interior of the existing building was then reconstructed and a kitchen, canteen and offices installed.

Both factory and office extensions are steel framed. The brick-clad office build-

ing has two storeys, with provision for a further two to be added later.

The factory section is clad in brick and aluminium; the 6in. thick monolithic concrete floor slab has $\frac{1}{2}$ in. grano topping and was completed in 25 days. Roofing is of 4in. thick Siporex slabs covered with two layers of felt and spar chips. The lightweight concrete allows spans of 85ft. Roof lights run the full width of the factory every 29ft.

H. Stanley Smith, A.R.I.B.A., was the architect and E. J. Cook and Co. (Engineers), the structural consultants.

COUNTIES ARE MINISTER'S "MONEY ORPHANS"

Thirty-five counties in England and Wales will not receive a ha'penny of Government money towards road schemes costing over £100,000 each until after 1963 unless the Minister of Transport dramatically expands his much-publicised "three-year rolling programme" of improvements to classified roads.

This is stated in the October issue of the Roads Campaign Council's "Highway Times."

"The reluctance to spend is not a germ which affects the county councils," it is stated. "They have offered to match from their rates a Government schedule of grants for classified roads worth twice the present figure."

It is estimated that the county councils will share about £23.5 million between them over the next three years.

"We should link expenditure to rising demand," the paper adds. "We should double road investment."



The new factory

Men and Movements

MR. C. W. KING, since 1955 chief civil engineer, British Railways Central Staff, British Transport Commission, has retired. After being engaged for 10 years on engineering work with the Southern Railway, he was transferred in 1933 as engineering assistant to the London East Division, and in 1935 in the same capacity, to the staff of the assistant engineer (general maintenance) at Waterloo, assisting with the permanent way works in connection with the rearrangement of lines between Waterloo and Wimbledon, and the general engineering work for the Portsmouth electrification. In 1936 he became assistant divisional engineer and, in 1942, divisional engineer, London East. In 1947 Mr. King was appointed new works engineer, Southern Railway, and in 1948 assistant civil engineer, London Midland Region.



C. W. KING

Mr. W. Dixon, deputy chairman of Wallace and Tiernan, Ltd., and director of E.C.D., Ltd., has celebrated 35 years of service with the organisation. Mr. Dixon is now in the United States attending the American Bakers Convention.

Mr. W. H. Diamond has been appointed to the board of Braithwaite and Co. Structural, Ltd. Mr. Diamond, well known in the consulting and structural engineering industry, a member of the Institute of Civil Engineers, and an associate member of the American Society of Civil Engineers, Braithwaite's central design office and estimating department at West Bromwich will continue to be under Mr. Diamond's direction.

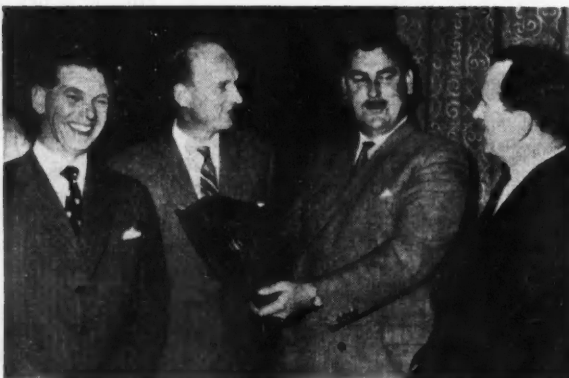


W. H. DIAMOND

Mr. G. A. Wilson, chief engineer of the Port of London Authority, recently returned from the United States, where he attended the Permanent International Association of Navigation Congress in Baltimore, Maryland.

This year's award of the safety shield by Holland & Hannen and Cubitts (Scotland), Ltd., was made to a Leeds site where a printing works extension is being carried out.

Mr. A. O. H. Bell, the agent, is seen here holding the shield which was presented to him by **Mr. J. R. D. Henderson**, director of Holland & Hannen and Cubitts (Scotland), Ltd. (extreme left) at a Whitley Bay hotel. Also with him is **Mr. I. M. Bain**, north east area manager, and **Mr. D. P. Jones**, the Scottish company safety officer (right of picture).



Mr. Samuel W. McCune III, deputy managing director of the Du Pont Co. (United Kingdom), Ltd., has been promoted to managing director. Mr. McCune succeeds **Mr. William H. McCoy**, who returns to the United States on special assignment with the parent company in Wilmington, Delaware.

New member of the board of Armstrong Whitworth (Metal Industries), Ltd., is **Mr. Austin W. Scott**, who joined the company in 1949. He will retain the position of works manager at the Jarrow foundry division, which he has held for the past two years.

Mr. William H. Rigg, B.Sc., has been appointed managing director of Firth Cleveland Tools, Ltd., a member of the Firth Cleveland group. He will operate from the company's Tipton works. For the past three years he has been managing director of Revo Electric Co., Ltd.

Barnes and Bell, Ltd., Glasgow, announce the appointment of **Mr. J. J. McGonigle** as plant and machinery manager. Mr. McGonigle, who has been employed as plant manager by several civil engineering contractors, joins the company from G. E. Simm Machinery, where he has been Scottish machinery manager for many years.



J. J. MCGONIGLE

Armstrong Cork Co., Ltd., have announced that **Mr. Kenneth M. Kent** has been elected as chairman of the board. **Mr. E. Malcolm Wood**, who has served as deputy managing director since 1956, succeeds Mr. Kent as managing director and chief executive office of the company. Mr. Kent was elected managing director of the company in 1926. Mr. Wood joined Armstrong in 1935 as a technical salesman. He became responsible for the building materials division of the company in 1946.

Among passengers recently embarking on the "Queen Elizabeth" for New York were **Mr. S. R. Eade**, managing director of A.E.I. Lamp and Lighting Co., Ltd., and **Mr. Desmond Kirkness**, managing director of Universal Asbestos Manufacturing Co., Ltd.

Mr. J. H. R. Motz and **Mr. Van Doosselaere**, respectively the president and managing director of Chamebel (S.A.), the European company of Williams and Williams, Ltd., recently visited the British firm at Chester.

At last week's conference of the Institute of Quarrying, **Mr. Herbert W. Jackson** was elected President and **Mr. Harold G. Marshall**, chairman, for 1961-62. At the age of 21 Mr. Jackson joined his father and eldest brother in The Dowling Lime and Stone Co., Ltd., Buxton, which his father had jointly founded in 1900. In the mid-thirties he assumed with his brother managerial control of the company.

Mr. Marshall is the senior director of S. Marshall and Sons, Ltd., the Halifax producers of natural York stone and concrete products. He is president of the National Federation of Freestone Quarry Owners and the immediate past president of the Federated Quarry Owners. He has also been president of the Yorkshire Quarry Owners Federation.

The Timber Development Association has appointed **Mr. J. Scott McBride** as the new director of the Association. Mr. McBride joins the T.D.A. after almost 15 years of association with Williams and Williams, Ltd., with whom he held various offices as director and general manager of subsidiary companies both in North America and Great Britain, and was a director on the board of the parent company.

Mr. Roger R. Sharratt is to be the managing director of Fram Precast Concrete Co., Ltd., a new subsidiary formed by the Fram Group. Aged 39, Mr. Sharratt is the son of a former managing director of the Fram and Russell companies. He joined Fram in 1947 and was made a director of Fram Reinforced Concrete Co., Ltd., in 1958.

Two new appointments to the board of Black and Decker, Ltd., have been announced. **Mr. J. C. Brooman**, F.C.A., has been appointed export sales director. **Mr. E. A. King**, A.C.A., has been appointed financial director. Mr. Brooman joined the company in 1952, Mr. King in 1954. Also announced are the appointments of **Mr. J. H. Longland** as sales manager in the United Kingdom and **Mr. R. K. Symmons** as marketing manager.

MUNICIPAL

Mr. E. Simpkin, surveyor to Consett (Durham) U.D.C. for 11 years, will retire at the end of October.

The new burgh architect at Inverness will be **Mr. W. T. Jack**, at present deputy burgh architect at Dunfermline. He will succeed **Mr. J. Blackburn**, who after 13 years in the position, is to take up a similar post at Worthing.

Mr. Edward Robinson, deputy borough surveyor at Colne for the last 10 years, has been recommended to the appointment of deputy borough surveyor at Nelson.

The deputy borough architect of Luton, **Mr. W. V. Smith**, has been selected for the post of borough architect of Reading, in succession to **Mr. C. H. A. Willett**, who recently retired.

After 12 years as surveyor and engineer to Hartley Wintney R.D.C., **Mr. P. J. Mitchell** is leaving to take up a private partnership.

Mr. J. A. King, deputy borough engineer of Leyton since 1958, will be the new borough engineer of Slough. He will take over from **Mr. E. Gardner Thorp**, who retires next February.

Beeston and Stapleford U.D.C. have appointed their present chief assistant engineer, **Mr. Sydney C. Moppett**, to the post of engineer and surveyor. He succeeds **Mr. B. H. Pattinson**, who is leaving for Reigate, Surrey.

An urban district engineer and surveyor who took up his post in 1929 is to retire early next year. He is **Mr. W. S. Pickett**, who was 24 when appointed by March U.D.C.

TRANSFORMATION OF ROWTON HOUSE, KINGS CROSS

£300,000 Conversion to Modern Hotel

THE Rowton House at Kings Cross Road, London, W.C.1, which for 60 years has provided accommodation for working men, has been transformed into a modern hotel at a cost of £300,000. Where 1,000 people were once accommodated, there are now 422 well-equipped bedrooms, each with hot and cold water, radio and telephone and individual electric heating.

The conversion has been carried out during the past year by Holland & Hannen and Cubitts (Great Britain), Ltd., who have virtually reconstructed the interior of the old building. The architects to Rowton Developments, Ltd., were Ley, Colbeck and Partners.

A new main entrance, 24ft. wide, has been formed in Calthorpe Street. For this operation the entrance had to be shored at a height of 25ft. and a span of 30ft., while a steel box frame was inserted and the new doorway and window were formed.

Originally there was a mansard roof covering two-thirds of the sixth floor along the whole frontage of Calthorpe Street and half of the Kings Cross Road frontage. The brickwork has been raised to square of the sloping roof and gain space for 30 additional bedrooms. The new flat roof is of aluminium decking covered in three-ply Ruberoid. Brickwork and rendering on the new extension match the existing fifth floor.

New Staircase

One of the major problems confronting Cubitts was the construction of a completely new reinforced concrete main staircase and the lift tower in the heart of the building.

The tower is capped by a lift motor

room and main water storage tanks which, with their contents, weigh 40 tons. The whole of the staircase and lift tower rests on 22 bored piles of 12in. diameter topped by a 6ft. thick pile cap of waterproofed concrete. Special diesel boring equipment with a rig less than 10ft. high had to be brought into the basement for the piling work.

As the staircase was brought up, each existing floor had to be broken open and cut back, being shored with timber until the new reinforced concrete beams and columns were cast and could support the cut back floors.

The hotel frontage has also been repaired and cleaned. A number of new window sills have been fitted and brickwork has been made good and repaired where necessary. Bedrooms on the ground floor have been fitted with double windows to eliminate noise.

Heating

A completely new chimney stack has been built in the heart of the building to serve the two new Crane-Whitehall oil-fired boilers of 1,227,000 B.Th.U. capacity in the basement. They replace two steam boilers. Oil storage is in three vaults under the pavement with a total capacity of 3,500 gallons.

The boilers supply hot water to the central heating system for the public areas and corridors through conventional column radiators as well as domestic hot water for the whole building. In addition to the boilers there are three 400-gallon calorifiers on the first, third and fifth floors, and these are coupled respectively to two 400-gallon and one 100-gallon hot water cylinders. There is also a 600-gallon calorifier in the basement.

D.S.I.R. TO STUDY CHIPBOARD MANUFACTURE

A long-term investigation of the problems of wood chipboard manufacture has been started by the D.S.I.R.'s Forest Products Research Laboratory at the request of the industry, which will bear the major part of the cost.

In Britain, chipboard's chief applications so far have been in the building and furniture industries. Its raw material, however, comes from such a variety of sources that in order to guarantee a consistently good product the Wood Chipboard and Particle Board Group of the British Plastics Federation is joining with the Forest Products Research Laboratory in an extensive programme of basic research at the laboratory. This follows preliminary investigations in recent months on a small-scale plant in the laboratory. The new work deals with such aspects of the subject as the moisture relations of chips and board; variables in the pressing of boards; nature and form of the glue bond between chips, and the effect of species.

Apart from shavings and other waste from normal wood-working processes, the manufacturing process uses trees of small diameter, such as forestry thinnings. These are converted into chips which are then dried, sprayed with an adhesive, and pressed into boards. The fundamentals of chip preparation, drying, screening, resin mixing, and mattress spreading will all be studied.

CHOWN ACQUIRE NEW COMPANY

The Chown Organisation have acquired Dix (Builders), Ltd., Ebury Street, London, S.W.1. Last year they acquired control of Ellsworth, Ltd., St. John's Wood, another firm of contractors. Henceforth A. T. Chown and Co., Ltd., the parent company, will be responsible for the major contracting within the organisation.

WOODWORM AND DRY ROT LECTURES

During October, November and December free lectures and film shows on woodworm and dry rot will be given by speakers from Woodworm and Dry Rot Control, Ltd., in principal towns in England, Scotland, Wales and Northern Ireland.

Subjects to be dealt with will include "Reasons For The Rapid Growth of Woodworm" and "The Fungal Decay of Timber". Documentary films made by the Rentokil Film Unit will be shown at most lectures, including the new 16mm colour film "Recalled to Life" which shows how a severe attack of dry rot was eradicated from an historic building.

Details of dates, times and venues may be obtained from Mr. S. R. Gauntlett, Director, Woodworm and Dry Rot Centre, 16 Dover Street, W.1. Scottish enquiries may be addressed to Mr. G. W. Stewart, 9 Royal Crescent, Glasgow C.1., and Northern Ireland enquiries to R. W. Glossop, 102 Lisburn Road, Belfast.

FORTH ROAD BRIDGE HEATING

A contract for road heating of the new Forth Road Bridge is proposed by the Forth Road Bridge Joint Board. It involves detailed design, supply, installation and putting into service of a heating system capable of preventing freezing of the Southern approach road at the toll booths near Hopetoun Crossroads.

The installation will include the sensing devices for automatic control, alternative hand controls and other necessary equipment for an effective installation working off the South Board mains at 240 volts. The area involved covers some 11,000 sq. yd.

Mott, Hay and Anderson, of London S.W.1, are the consulting engineers.

HOUSE-BUILDERS' CONFERENCE PROGRAMME

THIS year's House-Builders' Conference, organised by the Federation of Registered House-Builders, will take place at the Connaught Rooms, London, on Thursday, November 2.

The object of the conference is to give house-builders from all over the country an opportunity to discuss subjects of interest to the industry which will be introduced by acknowledged experts.

The principal matters to be discussed will include the land situation, including a review of present and future needs, densities in towns and in the country, the green belt policy in practice and appeals procedure. Mr. Wyndham Thomas, director of the Town and Country Planning Association, will introduce this subject and a discussion will be initiated by Mr. P. E. Trench, director of the National Federation of Building Trades Employers.

At the afternoon session a discussion on "house design and equipment—From the Inside" will be introduced by Lady Georgina Coleridge. Mr. Herbert Ashworth, a director of the Co-operative Permanent Building Society and of the Hallmark Group, will then speak on "The Next Five Years" and Mr. C. Douglas Calverley, past president of the Federation of Registered House-Builders, will start a discussion on this forecast of the future of house-building.

Annual Dinner

The annual dinner and dance of the Federation of Registered House-Builders will take place at the May Fair Hotel on Wednesday evening, November 1, Sir Keith Joseph, Minister of State, Board of Trade, has accepted the Federation's invitation to be its principal guest.

"BASIC ROAD STATISTICS" 1961

For every 38 yards of road, street and country lane in Britain, there is one vehicle. And that makes our roads the most crowded in the world.

This is just one of the hundreds of facts, brought together from many official sources, in the British Road Federation's 1961 edition of "Basic Road Statistics".

We have 33.2 vehicles of four or more wheels per mile of road—6.2 more than West Germany and 12.2 more than the United States. The British figure soars to 46.5 when motor cycles and other vehicles are added.

The total number of vehicles in use in 1960 was 9,383,140, five million more than in 1950. Five-and-a-half million of that figure were cars, more than in any other country except America.

How much did the road user pay in taxation? How much did the Government spend on roads? In 1960-61, they took £661,300,000 (11.1 per cent. of the national revenue) in motor taxation—over five times more than they were collecting ten years ago, when the percentage of national revenue was 5.3. The Government's share of spending on the roads in 1959-60 amounted to £98,851,000—less than one-sixth of taxation. In addition, local authorities spent about £89 million.

The 1961 edition of "Basic Road Statistics" is available from the British Road Federation, 26 Manchester Square, London, W.1. Price: 1s. plus 5d. postage.

THE COMMON MARKET

L.M.B.A. Arrange Lecture

In view of the interest being shown in the controversial aspects of this country's entry into the Common Market, and its possible effects on the building industry, the London Master Builders' Association have arranged that a lecturer from the Economic League, Mr. J. Bredin, should speak to members of the Association on Tuesday, October 31, at the R.I.C.S. Lecture Hall, Great George Street, S.W.1, at 6.30 p.m.

Talking of Safety

by
"DRAGEE"

As a means of access the ladder must surely be one of the oldest pieces of equipment in existence. It has a logical simplicity about it that is entirely admirable. A well-constructed pole ladder is as graceful and supple as the tree from which it is made; indeed, like the ship's mast or the telegraph pole it is merely an elaborate modification of the parent-tree itself. In Biblical days, Jacob dreamed of the ladder to Heaven. Ladders figure romantically in stories of love and elopement, and excitingly in tales of terror and escape.

The ladder is a symbol of fear: superstition is so deep-rooted that few of us can walk under a ladder without a feeling of apprehension or bravado. It is also a symbol of success.

Small boys have a very practical attitude towards ladders: they are things you use for fun. You can put a ladder against a wall, then try to climb up the underside, hand-over-hand or gripping the stiles, with an enormous expenditure of energy. You can put your feet over the rungs and hang upside down, and, when that palls, you can try coming down head-first at an angle of 45 degrees without falling off. Of course, there are those eccentric grown-ups who merely use a ladder for walking up or down, and never have any fun at all. What a waste of good ladder!

We don't only use them at work. Every householder worth his salt keeps a ladder for those interesting odd jobs around the premises. I have to use one to get into my loft, and this involves a combined domestic effort. First, I must take the car out of the garage so that my wife and son can

"Dragee," who is a practising safety engineer, would welcome subjects for discussion in this column. All names of persons mentioned in these discussions are entirely fictitious. Questions of law are expressed as the author's personal opinions and are not claimed to be authoritative.—EDITOR.

lift the ladder down from its supports under the roof trusses. Then we take it upstairs by a tortuous route which is never the same twice running but always ends unexpectedly in the bathroom. This is a cul-de-sac, and we have to struggle out again and pause to get our breath and consider the next move.

The feet of the ladder are wrapped in thick woollen socks which I must have worn when I did my last job in Lapland. They are provided with the intention of preventing pieces of plaster from being gouged out of the walls as we manoeuvre this way and that. . . .

At last the ladder is in place. It is standing firmly on a rubber mat. My wife and son take up positions at the base, and I prepare to ascend to the draughty and mysterious regions above. I push open the trap door and grope for the switch. I can hear voices coming from next door's garden, and a faint hissing noise from the cistern. I have arrived! I dismiss the helpers down below, and almost immediately bang my forehead against a portion of the structure. On one occasion this nearly caused me to fall back through the opening. (Assuming I had not broken my neck, I wonder how I would have analysed the accident. "Lack of proper instruction?" Don't be silly! "Insufficient protection, guard rails, toe-boards, etc.?" Well, possibly. "Personal faults . . . impatience, bad temper, skylarking?" Uhm.)

I was talking about this ladder business to a very up-to-date acquaintance of mine. He has a telescopic aluminium ladder which lives in the loft of his house. The trap door swings open at the touch of a lever, and the ladder descends, quietly and smoothly, from the darkness above. Billings was very proud of this gadget. He demonstrated it to me on two successive visits. On the third occasion it stuck. Billings was furious and tugged madly at the pull-rope. The contraption suddenly released itself, descending with a savage

rush straight at Billings' head. He was out cold for the count of 60.

Let's face it. The fancy ladder is today as much a masculine status symbol as the latest 60 guinea household device for the little woman. ("My dear, how stupid of me, I've left the kitchen door wide open again. What? . . . that thing? Oh it's nothing—just another of those awful labour-saving gadgets. It costs pounds to run. . . .") My ladder was salvaged from a builder's tip along with a heap of half-bricks, half-a-bag of iron-hard cement, and a chipped tea-mug. I fitted four new rungs. Three were missing at the bottom, and I can't imagine how they got on to the fourth rung without a running leap—unless they used it upside down, of course. The stiles were a bit shaky and I stiffened those as well with additional reinforcing bars. I have no qualms at all when I see the contractor's name branded on the side. If the ladder hadn't been ditched I am sure one of his men would have been badly injured sooner or later.

Because, after all, ladders can be dangerous things—and mine's still no exception.

RoSPA CONSTRUCTION SAFETY COURSES

A third building and civil engineering accident prevention course has been arranged by The Royal Society for the Prevention of Accidents from October 22-27 at the Civil Defence Staff College, Sunningdale, Berks.

The object of the course will be to train safety officers and site agents of the construction industries in the basic safety requirements of their jobs, and the fee, which will include accommodation, is £25. A further course of the same kind will also be held at Sunningdale from February 25-March 2, 1962.

Applications should be sent to the Training Officer, RoSPA, Artillery Mansions, 75 Victoria Street, London, S.W.1.

COMMISSION FOR THE NEW TOWNS

The Minister of Housing and Local Government has made the first appointments to the Commission for the New Towns, which came into being on Oct. 1, and which will assume responsibility for the assets and properties of the new towns as and when each reaches the stage when the main development is substantially completed.

As foreshadowed in a statement in August, the Minister has appointed Sir Duncan Anderson as chairman of the Commission and General Sir Nevil Brownjohn and Mr. Henry Wells as members. He has also appointed Mr. J. D. Russell, a member of a firm of City accountants, as a member of the Commission.

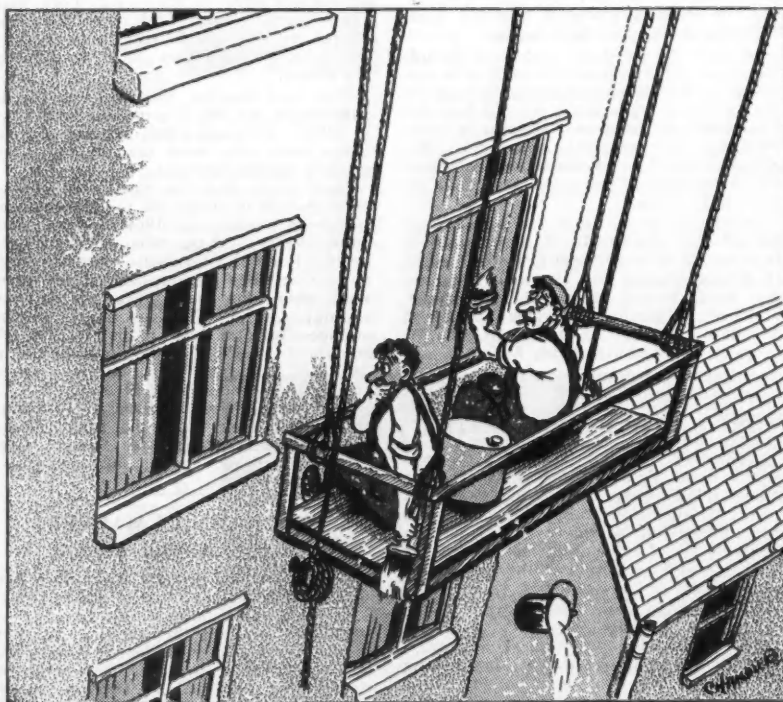
One or two further appointments are likely to be made in the near future.

CONTINENTAL OFFICES FOR PLYWOOD ASSOCIATION

The Plywood Association of British Columbia will shortly open two offices on the Continent—one in France and one in West Germany—as the first step in a sales drive aimed at the countries of the European Common Market.

Mr. J. B. Armstrong, general manager of the Association, said recently that while the B.C. plywood industry were fully aware that there were many clouds on the horizon in the form of possible tariff increases, they believed they must export, and felt that solutions to tariff problems must be found. "Despite the tariff situation, our decision shows how much importance we attach to our need to export," he added.

Fir plywood exports from British Columbia to the U.K. have risen from 5 million sq. ft. in 1954, the year in which the British Board of Trade lifted tariff restrictions affecting softwood plywoods, to 155 million sq. ft. in 1960.



"When you've been on this job as long as I have, you'll find it's safer to keep your mind on your work!"

International Construction**\$23M. TORONTO CITY HALL TO BE BUILT BY CUBITTS' ASSOCIATE**

THE contract for construction of Toronto's new city hall and civic square, which will cost \$23 million (£8 million), has been awarded to Anglin-Norcross Ontario, Ltd., whose parent company, Anglin-Norcross Corporation, is associated with Holland & Hannen and Cubitts, Ltd., London.

Finnish architect, Viljo Rewell, designed the building, which will be 300ft. high. His plans were chosen by an international panel of architects who studied some 520 entries from 42 countries before making their final choice.

When completed, in the middle of 1964, the city hall will form the new heart of Toronto and will give impetus to the development of downtown Toronto. It will consist of two tall boomerang-shaped blocks facing Phillips Square.

The two blocks, one 30 storeys and one 24 storeys high, will rise from a three-storey podium which will accommodate all the public amenities of the city hall.

The podium roof forms a high level plaza overlooking the rest of the square, which is to be enclosed by an arcade. A decorative pool in the square will be

frozen over in winter to form a skating rink. Poised over the roof of the podium, between the two office blocks, will be an oyster-like structure containing the council chamber and executive suites. The two boomerang-shaped blocks will be formed of buttressed reinforced concrete with floors cantilevered off on the inner face only.



Model of Toronto's new city hall

£6M. EGYPTIAN POWER STATION ORDER

In the face of competition from Czechoslovakia, France, Germany and U.S., English Electric Co., Ltd., have been awarded a £6 million contract by Cairo Electricity for a 120,000-kW. extension to the Cairo South Power Station.

The order covers the complete electrical and mechanical equipment to supply a further 120,000-kW. for domestic and industrial use in the city. The two 60,000-kW. steam turbines will be made at the Rugby works of English Electric, the alternators, transformers, including two rated at 75 MVA, and 63,000 volt switchgear at Stafford, and the low voltage switchgear and fusegear at Liverpool. The four boilers, each of 441,000lb. per hour capacity, will be manufactured by Simon-Carves, Ltd., Stockport.

Although English Electric are the main contractors and will co-ordinate the complete project, it is an Anglo-Egyptian enterprise in that Misr Concrete of Cairo have a £750,000 contract for the civil engineering work. The plant will be in operation early in 1964.

LIBYAN CEMENT INDUSTRY PROJECTS

From Libya, Barclays Bank D.C.O. report that the Federal Government has invited suggestions and tenders for the establishment of two cement factories, one in Cyrenaica and one in Tripolitania, before December 8.

COLLABORATION WITH PAKISTAN ON ATOMIC ENERGY

The United Kingdom Atomic Energy Authority and the Pakistan Atomic Energy Commission are to develop their collaboration to promote the peaceful uses of atomic energy. The chairmen of the two bodies, Sir Roger Makins and Dr. Usmani, who have been attending the General Conference of the I.A.E.A., in Vienna, have exchanged letters defining their mutual interests. Going beyond present exchanges of reports and the training given to Pakistan scientists, provision has been made for staff consultations as well as for assistance and advice on the uses of radioisotopes, particularly new uses which may be of special interest to Pakistan. The eventual supply by the United Kingdom of nuclear research and power reactors for civil uses in Pakistan is also envisaged.

GWYNNES PUMPS FOR GUIANA PROJECT

An order for irrigation pumping machinery in British Guiana has been placed with Gwynnes Pumps, Ltd., Hamersmith, London, W.6.

Valued at £31,540, the order has been received from the main contractors, Pauling and Co., Ltd., on behalf of the Government of British Guiana, and is for the Tapakuma irrigation project. It is for two 42in. vertical-spindle, axial-flow pumps, complete with syphon discharges.

ROADS EXPENDITURE TO BE DOUBLED

AUSTRALIA will almost double its rate of spending on the nation's road system in the next five years. The Federal Minister for Shipping and Transport, Mr. Opperman, said recently that £A1,080 million had been spent on roads in the last 10 years. In the next five years, £A950 million would be spent to bring the road network to the standard required in a fast developing country.

Mr. Opperman was opening the annual conference of the Australian Road Transport Federation at Terrigal, N.S.W. He said that in the last 16 years the number of commercial road transport vehicles had increased from 333,000 to 845,000. It was now estimated that road transport carried more than 75 per cent. of the total tonnage of goods moved in Australia each year.

Mr. Opperman said the Federal Government had already agreed to collaborate with State Governments on important projects such as new roads to open up northern Australia. Australia already has a network of sealed highways and main roads linking most of its principal cities, but the growth of private and commercial transport has put a constantly increasing strain on the road surfaces. Many districts, especially in remote areas, are still served by gravel or earth roads.

DROP IN RHODESIAN BUILDING

Although a drop of 25 per cent. in the value of work in the building industry is revealed in his annual report for the year ending June 30, 1961, the Salisbury city architect, Mr. J. Howard Wilson, says that the number of plans submitted dropped only 17 per cent.

The schedule of building plans shows that the trend of building development has, over the past year, veered towards the industrial. Industrial building accounts for over 30 per cent. of the total development registered.

The year was also the busiest ever for the Salisbury City Council's African building section. Capital works and scheduled maintenance to the value of £332,505 were completed. This figure exceeds the previous highest total—£217,761 for 1956-57—by £114,744.

BRITISH FIRM'S £5M. AUSTRALIAN DEVELOPMENT

Plans for development of a central shopping area in Adelaide, South Australia, to cost about £5m., have been submitted to Adelaide City Council by Burlington Estates, Ltd., a member of the Cecil Lewis group.

The scheme provides for a total shopping area of about 450,000 sq. ft. on a 6½-acre site in the centre of the city, and includes two large department stores. A 17-storey office block will be erected above the shopping centre, and parking accommodation for 1,000 cars will be provided.

Cheesman, Doley, Brabham and Neighbour, Adelaide, have prepared the plans in association with J. Seymour Harris and Partners, London and Birmingham.

£300,000 YUGOSLAV CONTRACT

A contract worth about £300,000 for the major part of the electrical equipment in a new pulp and paper mill to be built in Yugoslavia has been awarded to English Electric by Millspaugh-Wimpey, Ltd.

The equipment, consisting of power distribution gear and motors for driving the process machinery, will be made at Stafford, Liverpool and Bradford and delivered by mid-1963. The new mill, at Plaski in Croatia, will be operated by Tvornica Sulfatne Celuloze y Papira.

FOR THE DIARY

Oct. 19

Annual dinner of the Institution of Mechanical Engineers, Dorchester Hotel, London.

Institution of Civil Engineers, Great George Street, London, S.W.1. Informal discussion on "Sewage Disposal at Coastal Towns", introduced by W. P. Haldane.

Oct. 20

Autumn meeting of the Scottish Branch of the Institution of Municipal Engineers at Stirling, Oct. 20-21.

Meeting of the Midlands branch of the Contractors' Mechanical Plant Engineers, Wilson Arms, Knowle, 7.30 p.m. "Safety Precautions on Building Contracts," by P. H. Bott, C. Bryant and Son, Ltd.

Annual dinner of the Yorkshire Federation of Building Trades Employers. Queens Hotel, Leeds.

Autumn general meeting of the Southern Counties Federation of Building Trades Employers, Connaught Rooms, London, 10.30 a.m.

Annual dinner of the Merseyside and North Wales branch of the Institution of Plant Engineers, The Blossoms, Chester.

Oct. 24

Institution of Civil Engineers, Great George Street, London, S.W.1. "New Premises for the North Thames Gas Board, Fulham", by A. J. Leggatt and J. Bobrowski.

Oct. 25

Meeting of the Institution of Mechanical Engineers, 1 Birdcage Walk, Westminster, London, S.W.1. Presidential Address.

National Conference of the Town and Country Planning Association, Church House, Westminster. "Inquiry into Planning," Oct. 25-26.

Oct. 26

Institution of Civil Engineers, Great George Street, London, S.W.1. Traffic Engineering Group discussion on "Practical Traffic Surveys", introduced by B. L. Allen.

Oct. 27

Meeting of North West branch of the Contractors Mechanical Plant Engineers. Visit to Shell Refinery, Stanlow, Cheshire.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Imperial Hotel, Birmingham, 7.30 p.m. "High Pressure Hot Water Heating," by P. Marshall and K. J. Luntley.

L.M.B.A. Golfing Society Dinner, Savoy Hotel.

Oct. 28

Annual general meeting of the Institute of Building Estimators at the Kensington Palace Hotel, De Vere Gardens, London, W.8, at 2.30 p.m.

Oct. 31

Annual dinner of the British Road Tar Association, Grosvenor House, London.

Meeting of the London branch of the Institution of Plant Engineers, Royal Society of Arts, 7. p.m. "Tower Cranes—Their Use in Multi-storey Construction," by A. G. Stone.

Institution of Civil Engineers, Great George Street, London, S.W.1. "Western Avenue, Lagos: The Design and Construction of a Soil Cement Pavement", by C. M. Johnston. L.M.B.A. lecture on the Common Market, at the Royal Institution of Chartered Surveyors, at 6.30 p.m.

Nov. 1

Annual dinner and dance of the Federation of Registered House-Builders at the Mayfair Hotel, London, W.1.

Meeting of North West branch of the Contractors Mechanical Plant Engineers, "Landfall", Canning Dock, Liverpool, 9 p.m. Film show and talk "Lubricants".

Nov. 2

Meeting of the London branch of the Contractors' Mechanical Plant Engineers, Hendon Way Hotel, Hendon Way, N.W.4, 7.30 p.m.

The House-Builders Conference at the Connaught Rooms, London, W.C.2.

Institution of Civil Engineers, Great George Street, London, S.W.1. Informal discussion on "Foundation Design and Construction", introduced by D. J. Henkel.

Nov. 3

Annual dinner of Mid-Southern branch of the Contractors' Mechanical Plant Engineers, Red Lion Hotel, Henley-on-Thames, 7.30 p.m.

Presentation of L.M.B.A. Medals by Field-Marshal The Viscount Slim, K.G., at Fishmongers Hall, at 3 p.m.

Nov. 7

Institution of Civil Engineers, Great George Street, London, S.W.1. Presidential address by Sir George McNaughton.

Meeting of the Manchester and District branch of the Contractors Mechanical Plant Engineers, Woodcourt Hotel, Brooklands Road, Sale, 7.30 p.m.

Nov. 8

Meeting of the Reinforced Concrete Association at Royal Society of Arts, John Adam Street, London, W.C.2, 6 p.m. "Shrinkage and Creep in Concrete," by A. M. Neville, M.C., M.Sc.(Eng.).

Nov. 10

Scottish Motor Exhibition, Kelvin Hall, Glasgow, Nov. 10-18.

Dinner dance of the Yorkshire branch of the Contractor's Mechanical Plant Engineers.

Nov. 13

Factory Equipment, Heating, Ventilation and Thermal Insulation Exhibition, Earls Court, London, Nov. 13-18.

Annual dinner of the Lighthouse Club, Grosvenor House, London.

Nov. 15

Building Exhibition, Olympia, London, Nov. 15-29.

Nov. 20

L.M.B.A. President "At Home" at the Building Exhibition, 3.30 p.m.

Nov. 21

Annual banquet of the National Federation of Roofing Contractors, Grosvenor House, London.

Nov. 22

Annual general meeting of the National Federation of Roofing Contractors, London.

Nov. 24

Meeting of the Midlands branch of the Contractor's Mechanical Plant Engineers, Wilson Arms, Knowle, 7.30 p.m. Film and Lecture, by R. Bigwood, British Lift Slab, Ltd.

Nov. 25

Annual dinner of London branch of the Institution of Plant Engineers, Waldorf Hotel, London.

Nov. 28

Mid-Southern branch of the Contractors' Mechanical Plant Engineers, Brains Trust, Grosvenor Hotel, Caversham, Reading.

Nov. 29

Conference on "Oil Hydraulic Power Transmission and Control" at the Institution of Mechanical Engineers, 1 Birdcage Walk, London, S.W.1. Nov. 29-30.

Nov. 30

Annual dinner and dance of the Institution of Water Engineers, Park Lane Hotel, London.

Annual dinner and dance of the Derbyshire branch of the Contractors' Mechanical Plant Engineers, Victoria Restaurant, Chesterfield.

Dec. 1

Winter general meeting of the Institution of Water Engineers, at Institution of Civil Engineers, London.

Dec. 4

Royal Smithfield and Agricultural Machinery Show, Earls Court, London, Dec. 4-8.

Dec. 5

London Master Plasterers Association annual dinner and dance, Grosvenor House.

Dec. 7

Annual dinner and dance of the Midlands branch of the Contractors' Mechanical Plant Engineers, Town Hall, Sutton Coldfield.

Dec. 8

Federation of Master Builders' London Region "Ladies Night," Grosvenor House, London, 6.30 p.m.

Dec. 12

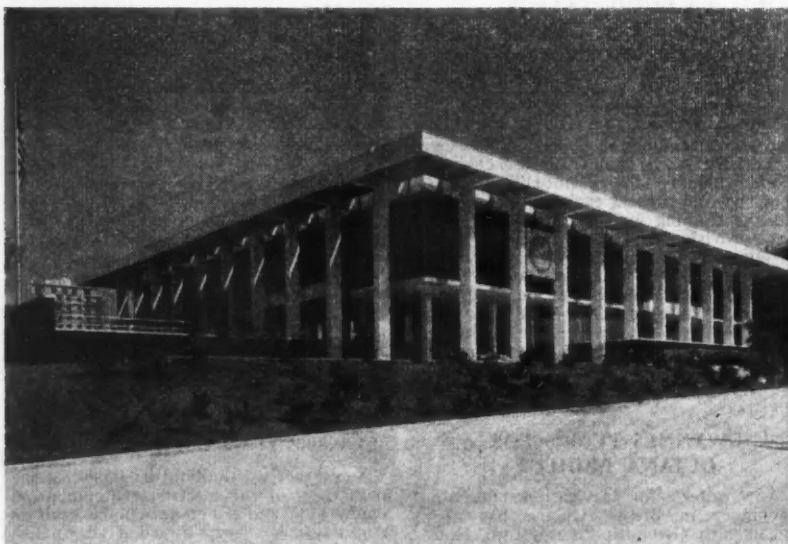
London Association of Master Stonemasons, bi-annual dinner and dance, Park Lane Hotel.

Dec. 14

Stag dinner of the Yorkshire branch of the Contractors' Mechanical Plant Engineers.

Dec. 20

The Institute of Sewage Purification—Metropolitan and Southern Branch symposium on the treatment of industrial and sewage sludges at Friends House, Euston Road, London, N.W.1.



The new United States Embassy in Athens. Built at a cost of £500,000, it is in the shape of a perfect square, with a centre court, enclosing a planted area and fountain. The construction utilises exterior columns, which support horizontal beams from the two upper floors of the three-storey building. These crossbeams are suspended by steel hangers, which ensure "give" in the event of a seismic tremor. The building itself is constructed of steel and reinforced concrete throughout, and the entire expanse of windows is of a special glass, tinted grey to cut down solar glare. Walter Gropius, the American architect, designed the building.

Trade and Company News

JOHN DEERE-LANZ INTRODUCE NEW RANGE OF TRACTORS

Distributors Attend Mannheim Conference

DURING the week commencing October 1, John Deere-Lanz, A.G., who represent John Deere in Europe, Africa and the Middle East, brought together in Mannheim, Germany, over 150 distributors and sales officials from some 30 countries to introduce to them the new line of John Deere industrial and agricultural tractors and equipment. After

two days of presentations by U.S. factory representatives, field demonstrations were conducted for three more days.

The new industrial units, comprising the largest selection ever offered by John Deere, include the 40 h.p. Ten-Ten crawler loader which is already being manufactured in Mannheim and was described in *The Contract Journal*, March 30, 1961. A

50 h.p. crawler loader with a 1yd. bucket—the Twenty-Ten—will become available in Europe sometime in 1962. Fast cycle time for this machine, it is stated, is assured by the 40 degree rollback of the 66in. bucket, 8,500lb. breakout, 3,500lb. full-height lifting capacity and a 7ft. 11in. dumping clearance.

In addition to these crawlers the new line features four industrial wheel tractors—the 40 h.p. Ten-Ten, the 50 h.p. Twenty-Ten, and the 60 h.p. Thirty-Ten which are already in production; also the 85 h.p. Forty-Ten which will be released during next year.

All the tractors will have power-matched equipment and will feature new John Deere built variable-speed engines. The four- and six-cylinder valve-in-head engines will operate at speeds up to 2,500 r.p.m. Petrol or diesel options will be offered throughout the line.

Bucket Sizes

A wide range of bucket sizes is provided for the tractors. The 701 Loader for the Ten-Ten wheel tractor has a standard 1yd. bucket, 4ft. in width, with a 20 degree rollback providing 4,800lb. of breakout force, 2,000lb. full-height capacity, and a dump clearance of 102in.

The 700 Loader, which mounts on either the Twenty-Ten or Thirty-Ten wheel tractors, has a bucket size of 1yd. Breakout force is 4,800lb., full-height lift is 2,000lb. and maximum dumping clearance is 102in.

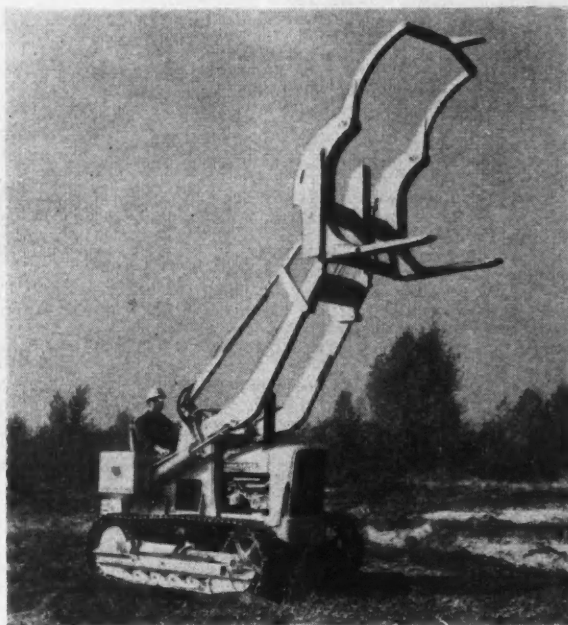
Single-lever control on the 720 Loader for the Twenty-Ten and Thirty-Ten wheel tractors speeds operation, state the manufacturers. The 720 Loader has 6,650 pryout pressure, 3,500lb. full-height lift effort, and clears 99in. for dumping. Buckets are 1yd. and 1.5yd.

Thirty-degree rollback gives the 740 Loader for the Forty-Ten wheel tractor 6,650lb. of pryout. Bucket capacity is 1.5yd. and lift effort is 3,500lb. at full height. Dump clearance is 99in.

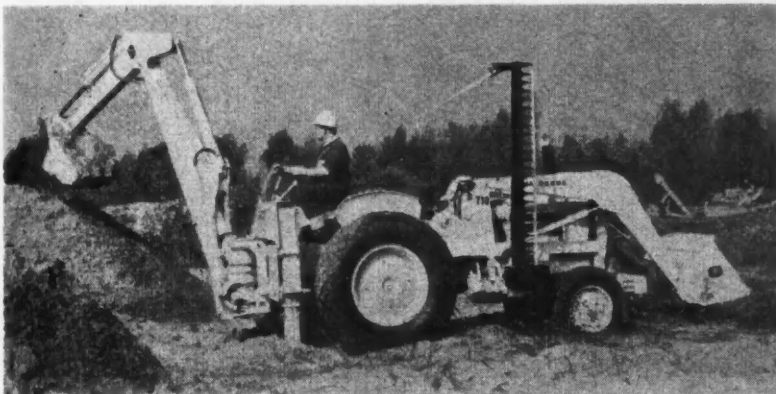
Backhoe

The range of equipment offered with the new industrial units includes the 51 Backhoe which has two-lever control and a maximum digging depth of 13ft. 6in. The maximum reach at ground level is 16ft. 6in., loading clearance is 11ft. and maximum swing (in any of five positions) is 180 degrees.

The digging force is 8,200lb. and the pryout pressure is 20,000lb. The eight



The Ten-Ten crawler, with log loader, seen on the Mannheim demonstration site



Two of the new wheel tractors, with (top) backhoe, mower and loader; and (below) loader and grader blade

bucket sizes available range from 12in. to 38in. Repositioning and removal times are approximately 15 minutes and five minutes respectively, and the transport height is 10ft. 3in. The weight is approximately 2,575lb.

Dozers

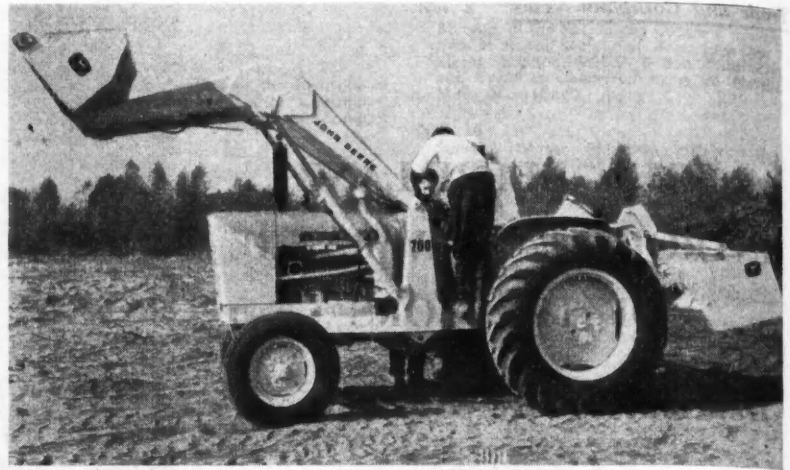
Five outside- or inside-mounted dozers are included in the new line. They are all-hydraulic models with power tilt, angle, and cut operated by the single T-bar control.

One of the dozers is the 610 inside-mounted model which, with the Ten-Ten crawler, is available with 72in. or 90in. blade with three-piece cutting edges. It angles at 18 and 25 degrees right or left, cuts to 12in. below track level and lifts as high as 40in.

The 624 outside-mounted dozer mounts on either the Ten-Ten or Twenty-Ten crawler. The blade is 90in. wide, 23in. high with three piece cutting edge. It cuts as deep as 12in. below track level and is easily set to angle 25 degrees right or left. Lift is 48in.

Other Equipment

Other equipment offered by manufacturers includes scrapers, winches, log arches (integral and drawn), scarifiers, cable ploughs, mowers, snow ploughs and

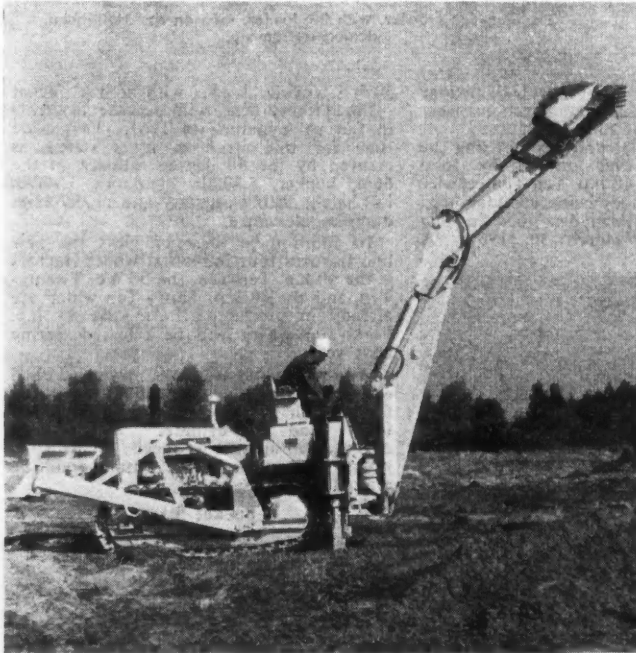


Demonstrating the 700 loader

landscaping and maintenance equipment.

The sole concessionaires in England and Wales for John Deere and John Deere-Lanz products are J. D. Tractors, Ltd.,

Maidenhead Road, Windsor, Berks. In Scotland the concessionaires are Caledonian Mechanical Handling Co., Ltd., 21 Old Castle Road, Glasgow, S.4.



Ten-Ten crawlers with (left) dozer and backhoe and (right) dozer and sideboom

VILLIERS POWER IN NEW EASIPRIME PUMPS

A NEW range of Easiprime self-priming pumps fitted with Villiers four-stroke engines has been introduced by Lee, Howl and Co., Ltd., Tipton, Staffs.

These pumps are lightweight units and will handle solids up to 3in. diameter. The range includes: 1½in. pump, powered by 80 c.c. J.A.P. two-stroke, maximum output 2,000 g.p.h., weight 61lb.; 1½in., 75 c.c. Villiers mark 7 four-stroke, 4,880 g.p.h., 69lb.; 1½in., 120 c.c. Villiers mark 12 four-stroke, 5,600 g.p.h., 75lb.; 2in., 120 c.c. Villiers mark 12 four-stroke, 6,000 g.p.h., 75lb.; 2in. Senior, 147 c.c. Villiers mark 15 four-stroke, 8,000 g.p.h., 91lb.; 2in./3in., 147 c.c. Villiers mark 15 four-stroke, 8,000 g.p.h., 91lb.; 3in., 256 c.c. Villiers mark 25 H.S. four-stroke, 14,000 g.p.h., 139lb.

The Easiprime pump will readily self-

prime from any lift up to 25ft., providing the casing is full of water when starting up. Priming is obtained by internal jets causing recirculation from the periphery of the impeller, which evacuates the air from the pump suction line. A rubber flap valve prevents the water in the casing from siphoning down the suction hose after the pump is stopped.

The pump casing and distance piece are made from silicon aluminium. The distance piece is located by spigots on both engine and casing, thus ensuring perfect alignment. The impeller is of phosphor bronze and is of the single inlet, open-vaned type, suitable for dealing with dirty or silty water without undue wear. It is mounted on the engine shaft, thus eliminating internal bearings.

A carbon face seal is fitted to the shaft to exclude air and prevent leakage on high suction lifts. The pump is mounted on

four resilient rubber buffers so that a strictly level foundation is unnecessary. Electric motor driven sets are also available.

BOBY PLANT TO BE MADE IN AUSTRALIA

Water treatment equipment designed by William Boby and Co., Ltd., 23, High Street, Rickmansworth, is to be produced and marketed in Australia under an agreement with the Magnus Chemical Co. (Pty), Ltd., Victoria.

The concession applies to the whole range of Boby plant except where electrolytic methods are involved. It is the second agreement of its kind that Boby have reached with an overseas company this year. A South African firm, Watermasters (Pty), Ltd., has already begun production of Boby plant.

Trade and Company News

THWAITES ENGINEERING TO PRODUCE 2-TON DUMPER

PRODUCTION of a new all-wheel drive 2-ton dumper, incorporating a number of design features, will be commenced next month by Thwaites Engineering Co., Ltd., Cublington, near Leamington Spa.

The machine is built on a two-part chassis joined by a wishbone link of particular strength, which allows greater manoeuvrability, tighter turns and increased stability, loaded or unloaded. This centre pivot link, claim the manufacturers, gives a high transfer of power to all wheels, as it ensures that the land wheels follow exactly in each other's track, with no scrubbing or sliding on turns, and giving greater life to half shafts. This feature also allows greater adhesion as well as more accurate positioning of the payload, stationary or in motion.

Power from the Petter PH2 16.4 h.p.

two-cylinder diesel engine is by enclosed chain drive to the rear wheels and prop shaft to the front pair. Only two universal joints with a maximum deflection of 26 degrees are used. Hydraulic finger-tip control of steering is a feature of the dumper. Control of the skip is by hydraulic double-acting ram, enabling the operator to control the rate of discharge. All hydraulics are protected by filters in the system.

The loading height of the skip is 45in., and the turning radius 12ft. 6in. Speeds vary from 3.25 m.p.h. in first gear to 9.8 m.p.h. in third (top), and reverse gear is also fitted. The weight of the vehicle is 33cwt., and the chassis has been constructed of electrically welded sectional steel, reinforced to withstand arduous working conditions. Price of the dumper delivered is £920.



The 2-ton dumper

SCAMMELL DUMPER IMPROVED

A six-speed gearbox and improved power take-off have been fitted to the Scammell Sherpa dump truck in its new Mark III version.

This 4 x 2 dump truck, made by Scammell Lorries, Ltd., Watford, Herts., has a 9 struck cu. yd. telehoist dumper body and is powered by a six-cylinder Leyland 0.680 diesel engine developing 150 b.h.p. Air pressure power braking is employed, with independent circuits for front and driving axles. The new power take-off is a more powerful unit and increases the tipping speed of the dumper body.

ALUMINIUM BUILDING PRODUCTS FROM STOCK

James Booth Aluminium, Ltd., Argyle Street Works, Birmingham, are to market for the first time a range of products for the building industry. They are to set up a building products warehouse from which architectural extrusions, corrugated and troughed building sheets, flashing and roofing coil, and fixing accessories can be supplied from stock. Details of the initial range are to be announced at the Building Exhibition in November.

MUREX EXTENSIONS COMPLETED

Extensions costing in the region of £350,000 have recently been completed at the works of Murex Welding Processes, Ltd., Waltham Cross, Hertfordshire. The new buildings consist of a 500ft. long single-storey production shop having an uninterrupted floor area of 62,000 sq. ft. for the manufacture of electric arc welding plant and a two-storey office block of 7,200 sq. ft. to accommodate the plant sales department, drawing office and works engineer's department.

DEXION SHELVEING SYSTEM

Dexion, Ltd., Maygrove Road, London, N.W.6, have introduced a new range of steel shelves. There are 11 shelves in all, the sizes being 36in. wide by 12in., 18in., 24in., 30in. and 36in.

The 12in. and 18in. are available in light and standard gauges, the 30in. and 36in. in standard and heavy, and the 24in. in all three strengths. The light duty shelf is suitable for loads up to 150lb., standard shelves for loads up to 450lb. and heavy duty shelves for loading capacity up to 900lb.

PORTABLE 200 AMP WELDING SET

MOBILE Haulage Co., Ltd., 230 Tottenham Court Road, London, W.1, are now marketing a portable, self-contained, petrol engined 200-amp welding set.

With a weight of only 2½cwt. the set is known as the "Mighty Midget". A



Portable welding set

medium frequency welding alternator provides a range of welding currents. A rotating permanent field enables current to be taken direct from a static winding and eliminates slip rings, brush gear and other moving parts.

Price of the portable welding set is £290 ex-works. Tools including earth clamp, electrode holder, 2-15ft. cable, hand mask and glasses plus a chipping hammer cost £7 10s.

Specification

Engine: J.L.O. Type L.375. 2-Stroke. A.C. welding alternator 30-200 amps. 427 cycles per sec. Net weight—2cwt. 2qt. 13lb. includes complete set and tools. Dimensions—width 20in. by length 33in. without handles. Height on wheels 27½in.

BRITISH STANDARDS

Outdoor storage problems created by tropical climates has led to the publication of British Standard 3408 which lays down specifications for tarpaulins to be used in the tropics. This new standard is primarily intended for use by oil companies and users of engineering equipment operating in the tropics.

The standard specifies six base fabrics, two of cotton and two of flax, in weights ranging from 18 to 24oz./yd.². Proofing treatments and performance requirements for the proofed fabric are also prescribed. Making-up particulars and test procedure are included.

The standard constitutes a range of products meant for individual needs and different applications. They should not be regarded as alternatives to each other, and users will find it helpful to consult their suppliers about the choice of construction for their own purposes. Price 4s. 6d.

Copies of this British Standard may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1.

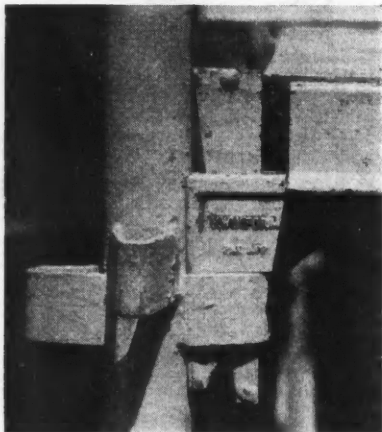
SMALL BORE TUBE BENDERS

Chamberlain Industries, Ltd., Staffa Works, Argall Avenue, London, E.10, are now offering a range of hand-operated benders for small bore tubes. Each size is light enough to be carried in a tool bag and the bending operation can be carried out without the need for heat, a bench or a stand.

The benders are made in eight sizes, for ¼in., ½in., ¾in. and 1in. i.d. copper tubes to BSS.659 and for ¼in., ½in., ¾in. and 1in. o.d. light gauge ferrous and non-ferrous tubes up to 16 s.w.g. thick.

Trade and Company News**NO LOOSE FITTINGS WITH NEW
KWIKSTAGE SCAFFOLDING**

A HAMMER is the only tool needed to erect a new system of scaffolding which is now being produced by Kwikform, Ltd., Birmingham and Welling, Kent. With this universal system, known as Kwikstage, all the coupling components are built-in. Thus, except for a toe-board bracket, there are no loose fittings.



Detail showing captive wedge

There are four basic components of the system—the standard, weighing 26lb., the transome, 22lb., the guard rail ledger, 25lb., and the standard scaffold batten, 33lb. These are firmly connected to one another by means of captive wedges. In the case of the standard there is a spigot connection in addition to the wedge, for extra safety.

Scaffolding platforms can be built in intervals of 1ft. 7½in. or multiples of

1ft. 7½in., thereby enabling any storey height to be achieved with a maximum discrepancy of only 9½in. Guard rails are automatically positioned 3ft. above the working platform.

The maximum length of any of the basic components is 8ft. Battens are of a standard 8ft. length and 2in. thickness. Erection is in standard bays of 8ft. and each bay is in effect an independent tower, coupled to the next tower by the insertion of the guard rail ledger.

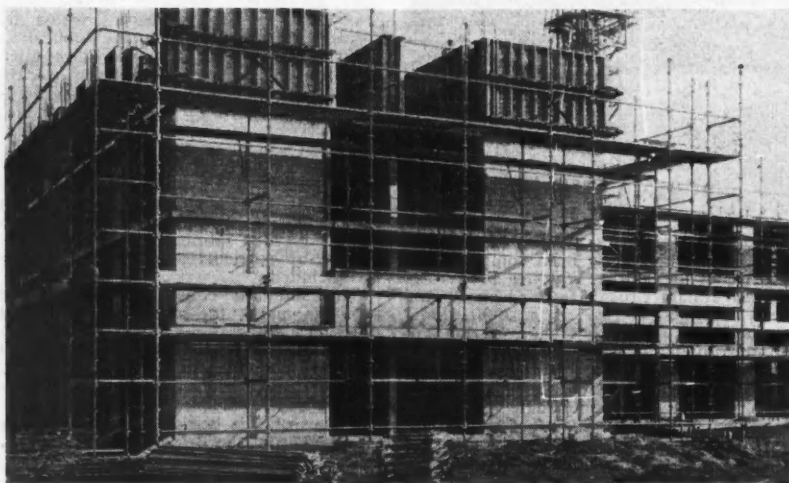
In addition to the four basic components there are additional accessories such as two-board and three-board stage brackets, a tie bar for use with stage brackets, a return unit for tying scaffold runs together at right angles, and a 12ft. bracing unit for diagonal bracing with mobile towers and hoist towers.

All tube used in the manufacture is of 1.29/32in. outside diameter. An advantage of this is that it is possible to break into tube and fittings anywhere and contractors can use the new system alongside or mixed with existing stock.

The two-board and three-board stage brackets can be used as an integral part of the system. They are moved up at intervals of 1ft. 7½in. to give a convenient working height.

Before its general presentation the system has been tested on sites at Peterborough and Southampton. It is reported that at Peterborough two labourers, in their first day of handling the system, erected an 80ft. run of Kwikstage to a height of 20ft. in five hours, a certain time in this period being spent on levelling the ground.

The cost of the components is as follows: Standard 6ft. 6in., 32s. 11d.; transom unit, 22s. 6d.; ledger/guard rail unit, 27s. 3d.; batten 7ft. 11½in., 27s. 6d.; return unit, 40s. 3d.; toe-board bracket, 3s. 9d.; batten, 4ft. 1½in., 12s. 6d.; three-board stage bracket, 26s. 8d.; two-board stage bracket, 22s. 2d.; tie bar, 11s. 5d.; 12ft. bracing unit, 43s. 6d.



Kwikstage used on the construction of multi-storey flats

TRADE NEWS IN BRIEF

A new leaflet showing the various types of Ready-Pak buildings has been produced by Armitage Units, Ltd., Salem, Oldham.

A folder containing comprehensive details of Key perforated pipes for sub-soil drainage has been published by the Key Engineering Co., Ltd., Larkfield, near Maidstone, Kent. The pipes, which are basically the same as the standard Key pitch fibre drainpipes, are available in 8ft. and 5ft. lengths in diameters of 3, 4 and 6in.

Industrial Pumps, Ltd., Nottingham, who handle all Flygt submersible electric pumps in Britain, announce that they have appointed Alexander and Walker, Ltd., Weston Sub Edge Brestforton, near Evesham, Worcs., as agents for the sale and hire of Flygt pumps.

Cambridge Instrument Co., Ltd., 13 Grosvenor Place, London, S.W.1, have published a series of leaflets detailing ranges of instruments made at the mechanical thermometer division and now available from stock.

**PRIESTMAN OPEN NEW
SCOTTISH DEPOT**

SOME 30 guests, representing almost as many firms and authorities interested in earthmoving and materials handling plant, recently attended the official opening of Priestman Brothers' new Scottish branch office and depot.

The guests, who were welcomed by Mr. Philip D. Priestman, chairman and managing director, his co-director, Mr. J. H. Bruce, Mr. A. W. Johnson, Scottish branch manager, and other company officials, were shown over the depot which, although



Mr. Philip D. Priestman with Mr. G. A. Ashbridge, northern area representative (left) and Mr. A. W. Johnson, Scottish branch manager (right)

occupying the same site at 1660 London Road, Glasgow, now incorporates a new office block and showroom with extensive replacement parts stores.

The depot inspection was followed by dinner at the North British Hotel where, in his address of welcome, Mr. Philip Priestman gave an account of the company's history and latest products. Mr. David M. Henderson, principal of John McAdam and Sons, Ltd., responded.

Informal discussions then followed the showing of the Priestman colour film "The Birth of a Lion."

**AGENTS FOR LUDWIG LANG
BENDERS**

F. J. Edwards, Ltd., 359 Euston Road, London, N.W.1, have been appointed sole representatives in the United Kingdom for Ludwig Lang tube bending machines.

The range includes the mandrel type model EL general purpose machine with electro-mechanical drive, which has a capacity of up to 3in. o.d. by 14 s.w.g. wall thickness; the electro-hydraulic model Uni-Gigant, with capacity of up to 6½in. o.d., also of the mandrel type; and the Robima electro-hydraulic machine which caters for tubes or pipes up to 10in. o.d. The latter machine also bends solid bars and sections up to 16in. standard profile.

CASE ORDER LEYLAND DIESELS

J. I. Case Co., Ltd., have placed a substantial contract with Leyland Motors, Ltd., who will initially supply 200 Power-Plus 0.370 diesel engines of 110 b.h.p. for installation in the Case 1000 D crawler tractor and 50 Power-Plus 125 b.h.p. 0.400 diesels for the Case W.12 wheeled tractor.

Current Constructional Activities

PROJECTS

CONTRACTS

AWARDS

THIS editorial feature provides readers with a comprehensive news service covering forthcoming private and public construction work. Commencing on this page information is given concerning future projects followed by details of tenders being invited. In the third section will be found news of tenders recommended for acceptance, tenders accepted and contracts awarded. Attention is also drawn to the advertisements covering contracts and appointments appearing in the front part of the *Journal*.

BUILDING AND DECORATING (See also Housing Schemes)

Banstead, Surrey.—Co. E.C. recommended to approve in principle sketch plans for the erection of Tadworth Court County Primary School and Banstead County Primary School and the provision of six movable classrooms at the County Secondary School. Estimated cost: £71,571, £74,854 and £9,900 respectively.

Barking, Essex.—B.C. recommended to prepare plans for alterations at Barking Fire Station. Estimated cost £5,000.

Barnes, Surrey.—B.C. recommended to invite tenders for the provision of transfer station, weighbridge, canteen and ablutions, etc. Estimated cost £24,000.

Barnsley, Yorks.—Sheffield Regional Hospital Board recommended to appoint Fairhurst and Poppleton, 7 Regent Street, Barnsley, architects for provision of single bed cubicle on the end of Newton and Pawsey Ward and changing room for theatre staff at Beckett Hospital.

Belfast.—W. H. Stephens and Sons, 13 Donegal Square North, are the quantity surveyors, J. G. Doran, 20 Derryvolgie Avenue, consulting engineer and McCandless and Barton, 6 Murray Street, consulting electrical and mechanical engineers for the first phase development of a site for new halls of residence for the Queen's University.

Bromley, Kent.—B.C. recommended to prepare schemes and invite tenders for the erection of 10 garages at the rear of 2-12 Eastry Avenue, 20 at the rear of Whitebeam Avenue and 40 between 115 and 117 Faringdon Avenue.

Chertsey, Surrey.—Co. E.C. recommended to approve in principle, sketch plans for the erection of Pyrroft School. Estimated cost £76,701.

Chesterfield, Derbys.—Sheffield Regional Hospital Board recommended to appoint Glossop, Brayshaw and Bailey, 44 Glumangate, Chesterfield, architects for non-resident nurses' changing room and dining hall at Scarsdale Hospital and alterations to Chatsworth Ward to form psychiatric unit at Walton Hospital.

Chester-le-Street, Dur.—Hammond United Breweries, Ltd., Bradford, propose public house on the Whitelands Estate; Barley Mow Working Men's Club are seeking land for club premises.

U.D.C. Surveyor to prepare layout plans for the erection of shops and flats at the junction of Second Avenue and Walbridge Road, on the Bullion Lane housing estate.

Derby.—Sheffield Regional Hospital Board recommended to appoint Naylor, Sale and Widdows, St. Mary's Gate, Derby, architects for additional cold water storage at Bretby Hall Orthopaedic Hospital and replacement of canteen at The Pastures, Mickleover; Messrs Gleeds, 7 Clinton Terrace, Derby Road, Derby, quantity surveyors for lift, milk kitchen and improvements to operating theatre suite at Derbyshire Children's Hospital and T. H. Thorpe and Partners, 41 Friar Gate, Derby, architects for dental unit and male occupational therapy department at Kingsway Hospital.

Doncaster, Yorks.—Sheffield Regional Hospital Board recommended to appoint Morrison and Partners, 15 Northumberland Road, Sheffield, 10, architects for extensions to boiler house at St. Catherine's Hospital.

Durham.—City Council approved plans by Durham University for arts building at New Elvet (architect, Marshall Sisson, Godmanchester, Huntingdon); and geology buildings, etc., at South Road (architects, Easton, Robertson, Cusdin, Preston and Smith, 53 Bedford Square, London, W.C.1). It is likely

to be about nine months before tenders are obtained.

Eston, Yorks.—U.D.C. considering a £20,000 scheme for improving and redeveloping Eston Square, including the provision of trees, shelters, and bus lay-bys and improvements to buildings.

Folkestone, Kent.—B.C. recommended to approve the erection of a factory at land north of Biggins Wood Road, for F. W. Maul and Son, 78 Tontine Street, Folkestone.

Frimley, Surrey.—Co. E.C. recommended to approve in principle sketch plans for an instalment of The Grove County Infants School comprising seven movable classrooms with staff and sanitation facilities. Estimated cost £28,605.

Glamorgan.—Tenders are due shortly for first stage of the conversion of St. Donat's Castle into an Atlantic College. Architect's for the scheme are Sir Percy Thomas and Son, 10 Cathedral Road, Cardiff and quantity surveyors are W. T. Hills and Co., 3 Castle Street, Cardiff. Consulting engineers for the sewage disposal scheme and boat slipway are W. S. Atkins and Partners, Arlbee House, Greyfriars Road, Cardiff.

Grantham, Lincs.—Sheffield Regional Hospital Board recommended to appoint F. J. Lenton and Partners, 16 Finkin Street, Grantham, architects for paediatric unit, new central kitchen, stores and staff dining accommodation, sisters' and nurses' home, new mortuary and new maternity block at Grantham and Kesteven General Hospital.

Godalming, Surrey.—B.C. recommended to submit to Ministry for inclusion in the 1962-63 programme, proposal for the provision of a swimming pool at Broadwater. Estimated cost £45,000-£55,000.

Hendon, Middx.—B.C. recommended to approve in principle, preparation of scheme for proposed alterations at the Destructor Works.

London.—City Corporation have approved plans for erection of an office block at Salisbury Square, Dorset Rise, Hutton Street and Primrose Hill, E.C.4, for Prudential Assurance Co., Ltd.

Maidstone, Kent.—B.C. recommended to submit to C.C. For approval, scheme for the conversion of 107 Tonbridge Road into an old peoples home.

Poplar.—B.C. have appointed W. V. Zinn, Collingham House, Eagle Street, London, W.C.1, as the consulting engineer for reinforced concrete and piled foundations design, and Thomas Barrett, Sons and Partners, 50 Pall Mall, London, S.W.1, as the quantity surveyors, for the St. John's Parish area housing development, and for a health centre on the same scheme.

Sheffield.—City Council recommended to appoint Oxley and Bussey, 91 Pins one Street, Sheffield, 1, architects and L. Fletcher, North Church Street, Bakewell, the quantity surveyor for provision of additional temporary classrooms at Dore C.E. (aided) School.

South Shields, Dur.—The Methodist Church have been offered a site at the corner of Whiteleas Way and Hogarth Street for the erection of a church. J. H. Morton and Son, Martins Bank Chambers, Fowler Street, are the architects for a proposed Sunday School at Harton Methodist Church, Sunderland Road. Plans have been prepared by J. M. Angus, 3 Gallowgate, Newcastle upon Tyne, for converting premises at Westoe Road into club premises for the South Shields Catholic Association Club and Institute; Plans have been prepared by C. Solomon, 30 St. Mary's Place, Newcastle upon Tyne, for the erection of shop premises at New Green Street for W. Duncan, Ltd. Revised plans have been approved for club premises at Bath Street for South Shields Supporters' Social Club. The architects are Page, Son and Hill, 75 King Street; plans have been prepared by L. D. Rooker, 17 Leafield Crescent, for ice cream factory and garage, Maxwell Street, for Minchella and Co., Ltd., 11 Ocean Road.

Southend-on-Sea, Essex.—B.C. recommended to approve in principle first stage of comprehensive scheme for the construction of an indoor swimming pool with spectator accommodation for 500, catering facilities and small sun terrace at Warrior Square.

Stockton-on-Tees, Dur.—J. G. L. Poulson, 54 Albert Road, Middlesbrough, is the architect for workshops, etc., at Brunswick Street for Benson, 100 Yarm Lane.

Sunderland.—Corporation Transport Committee propose further additions to the

Wheatsheaf Depot. The first stage will cost £150,000.

Plans are in hand for the erection of a £42,000 church hall at St. Nicholas Church. The architect is D. C. Slater, 4 Belsay Gardens.

Planning authorities have approved outline plans for the erection of three-storey offices and shops near Sunderland Central Railway Station, for Metrovincial Properties, Ltd. The architect is J. G. L. Poulson, 54 Albert Road, Middlesbrough.

Plans have been prepared by Roy Eggleston, 3 Grange Crescent, for the erection of club premises in Newcastle Road for the Sunderland Companions' Club.

Plans and estimates are being prepared for converting "Moorfields" into a hostel for old people.

Surbiton, Surrey.—B.C. recommended to invite tenders for the construction of conveniences at Alexandra Recreation Ground. Estimated cost £3,700.

Wandsworth.—B.C. recommended to appoint J. Hewitt, 140 Streatham Hill, London, S.W.2, to plan and supervise the conversion of 16-18 Madeira Road into flats for old people.

Ware, Herts.—R.D.C. have approved in principle proposed scheme for a school for engineers with students' hostel, administrative buildings and staff residence on the Terlings Estate, Gilston, for Ministry of Works.

Westminster.—Tenders are being obtained for erection of a store, with 12 floors, on the site of the Frederick Gorrage department store at Buckingham Palace Road, London, S.W.1. The architect is Morris de Metz, 29 Gloucester Place, London, W.1. Estimated cost £1m.

Wimbledon, Surrey.—Co. E.C. recommended to approve in principle, sketch plans for the provision of refectory and common room facilities at the Technical College. Estimated cost £19,000.

ELECTRICAL

Doncaster, Yorks.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, consulting engineers for provision of drive lighting at St. Catherine's Hospital.

Grimsby, Lincs.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, consulting engineers for electrical services for improvements to drive lighting at Scartho Road Hospital.

Louth, Lincs.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, consulting engineers for improvements to drive lighting at the County Hospital.

GAS AND WATER SUPPLY

Epsom and Ewell, Surrey.—B.C. recommended to submit to Ministry for approval and loan sanction, joint water softening scheme. Estimated cost £205,550.

Sheffield.—City Council recommended to approve water mains extensions. Estimated cost £5,913.

HEATING AND VENTILATING

Doncaster, Yorks.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, consulting engineers for mechanical and electrical services for water softener installation and steam supply to wards at Tickhill Road Hospital, for fouled linen sluicing stations at Conisbrough Hospital and Fullerton Hospital, Denaby main, and for thermostatic controls to central calorifier at St. Catherine's Hospital.

Grimsby, Lincs.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, consulting engineers for mechanical and electrical services for replacement of boiler at Scartho Road Hospital.

Hastings, Sussex.—B.C. recommended to obtain tenders for the supply and installation of equipment necessary for an electrical heating system in the education department.

Louth, Lincs.—Sheffield Regional Hospital Board recommended to appoint Wm. Saunders and Partners, 57 Ugate, Louth, architects for provision of new service duct and K. W. Dale and Partners, 9a Sackville Street, London, W.1, consulting engineers for mechanical services for the new service duct at the County Hospital.

HOUSING SCHEMES

Barnes, Surrey.—B.C. recommended to approve revised sketch plans for the development of 20-38 Stanton Road, comprising the erection of one block of 18 flats.

Brentford and Chiswick, Middx.—B.C. recommended to approve scheme for the erection of six flats in one three-storey block with six garages on site at 14/20 Sutton Lane and builders yard at rear.

B.C. recommended to submit to Ministry for approval, scheme for repair and conversion of 64 Netheravon Road, Chiswick into two flats. Estimated cost £1,970.

Epsom and Ewell, Surrey.—B.C. are preparing bills of quantities for the erection of 12 flats at Ruxley Farm House site.

Folkestone, Kent.—B.C. recommended to submit to Ministry for approval, following programme for 1962: Dover Road (Martello) site—14 flats and maisonnettes with garages; Bridge Street—six dwellings for old people; Ivy Way—thirteen dwellings for old people; Cobden Road—three houses and garages.

Town Planning Committee have approved, subject to Ministry approval, outline application for the erection of 30 houses with garages at Castle Bay and adjoining The Esplanade, Sandgate, for John Mowlem and Co., Ltd., 91 Ebury Bridge Road, London, S.W.1.

Godalming, Surrey.—B.C. recommended to apply to Ministry for permission to include the erection of 40 houses at the Green Lane site, in the 1962 programme.

Hastings, Sussex.—B.C. recommended to approve, subject to conditions, plans for the erection of 40 bungalows and garages, stage IV, at Alexandra Park Estate, for Millview Estates, Ltd. (A. C. Draycott, Agent, 8 South Street, Lancing); outline application for the demolition of Castledown House, Castledown Avenue, and erection on site of one seven-storey block of 30 flats with car parking space, for The Northolt Construction Co., Ltd. (N.A.E. Wyatt, Architect, 2 Castle Hill Road, Hastings).

Maidstone, Kent.—B.C. recommended to submit to C.C. for approval, detailed plans for the erection of 57 three-bedroom houses and 57 garages at Bicknor Road/Selby Road and scheme for the conversion of 111 Tonbridge Road into 9 old persons bedsittingrooms and erection of a block of 12 bedsittingrooms at the rear.

Town Planning Committee have approved subject to conditions, scheme for the erection of 100 flats or maisonnettes with garages at the rear of 286 and 288 Tonbridge Road, for the Cuckmere Brick Co., Ltd., Berwick Station, Alfriston, Polegate, detailed plans for 23 detached and 13 pairs of semi-detached bungalows at Allington Park Estate, off Conway Road, for Sterling Homes, Ltd., 26 Manchester Square, London, W.1.

Prudhoe, Northumb.—Plans have been approved for the erection of houses at Highfield Lane, for Wimpey and Co. Ltd., Orchard House, Fenwick Terrace, Newcastle upon Tyne.

Wandsworth.—B.C. recommended to appoint Andrews, Kent and Stone, 60-66 Wardour Street, London, W.1, as the consulting engineers for an 8-storey block of 62 dwellings at Sutherland Grove.

PLAYING FIELDS, PARKS, ETC.

Hendon, Middx.—B.C. recommended to include in the 1962/63 programme scheme for provision of a children's play area at New Brent Street Redevelopment. Estimated cost £3,000.

B.C. recommended to approve in principle the further development of Cophall Playing Fields in seven stages. Estimated cost £129,850.

ROADS, BRIDGES AND SITE WORKS

Carlisle, Cumb.—City Council recommended subject to Ministry approval to invite tenders for the re-surfacing of runways and taxi-ways at the Airport (in two stages).

Dorchester.—B.C. recommended to invite tenders for the construction of an access road and soil sewer at Southern area housing site.

Folkestone, Kent.—B.C. recommended to submit to M.T. for approval, scheme for the improvement of the junction of Sandgate Road and Grimston Avenue. Estimated cost £2,500.

Godalming, Surrey.—B.C. recommended to prepare specification and invite tenders for the construction of a link road between Cliffe Road and Cliffe Rise.

Hendon, Middx.—B.C. recommended to submit to Ministry for inclusion in the 1962/63 programme, schemes for North End Road—widening by Manor House Housing and construction of layby, £19,510; Finchley Road—resurfacing, £2,000; Hammers Lane—widening and improvement, £7,600; Parson Street—widening and resurfacing £1,000; Page Street—improvement from Watford Way to

Railway Bridge, £19,500 and widening of Bridge and improvement works (part), £6,000.

Lowestoft, Suffolk.—B.C. recommended to submit to C.C. for inclusion in the 1962/63 programme schemes for reconstruction works at following: A.1117 Bridge Road from Lock Bridge to Victoria Road, £5,010; B.1384 Stradbroke Road from Ship Road to Grove Farm Corner, £1,630; B.1385 Corton Road from Heather Road to opposite Warren Road, £920; Denmark Road from Flensburgh Street to Rotterdam Road, £3,410; Carlton Road on south side from Kirkley Park Road, £900; London Road South from Walmer House to Pakefield Terminus, £6,090; Albany Road to Carlton Road and from Pakefield terminus to southern Borough Boundary, £6,440.

Surbiton, Surrey.—B.C. recommended to invite tenders for the improvement of Villiers Avenue at Cranes Park junction and Ewell Road from Lenelby Road to Princes Avenue.

CONTRACTS

Full details of the Contracts marked * will be found in our Advertisement Columns.

BUILDING AND DECORATING
(See also Housing Schemes)

Amptill, Beds.—New bathrooms, drainage, etc., 17-39 Station Road, Liddington, for R.D.C. Submit names to the Engineer and Surveyor, The Limes, 12 Dunstable Street, Amptill by October 23. Deposit £1 ls.

***Ashton-in-Makerfield, Lancs.**—Construction of office accommodation, for U.D.C. Tenders by November 10.

Banbridge, Down.—Improvements and repairs to 15 Labourers' Cottages at Ballyievey (4), Ballykelly (7) and Ballysallagh (4), for R.D.C. The works include the provision of water supply, sewerage, internal plumbing, alterations and repairs. Documents from J. G. McKinney, engineer and surveyor, Town Hall, Banbridge. Deposit £3. Tenders by November 10.

Bedfordshire.—C.C. to compile revised list of contractors willing to carry out building maintenance and decoration works to county buildings, and future tenders will be invited from contractors selected for inclusion on this list. Contractors will be required to give an undertaking to carry out, within a reasonable time, all work entrusted to them and, where necessary, to give immediate attention to urgent repairs. Contractors who wish to be considered for inclusion under any or all of the following headings may obtain an application form from the County Architect, Shire Hall, Bedford: (a) General building repairs; (b) painting and decorating; (c) heating engineering; (d) electrical work; (e) plumbing. All application forms must be received by Nov. 11.

Blackwell, Derbys.—Alterations to 10 Hardwick Avenue, Shirebrook, for R.D.C., comprising the conversion of existing kitchen, pantry and outside w.c. into kitchen and bathroom. Documents from the Engineer and Surveyor, Dale Close, 100 Chesterfield Road South, Mansfield. Tenders by Oct. 24.

Bournemouth, Hants.—Provision of new cloakrooms and sanitary accommodation at Malmesbury Park C.P. School, Malmesbury Park Road, and Pokesdown C.P. School, Livingstone Road, for B.C. Documents from the Borough Architect's Office, Room 106 Town Hall, Bournemouth. Deposit £2 2s. each contract. Tenders by November 10.

Bridgwater, Som.—Adaptation of existing M.A.P. Hut to form light industrial unit, at Colley Lane Industrial estate, for B.C. The work consists of the installation of sanitary fittings connected to existing drains, new windows, electrical work and redecorations, etc. Applications to the Borough Architect, 2 Taunton Road, Bridgwater, by October 23.

Bury, Lancs.—Supply and erection of a temporary canteen and ancillary building works in connection therewith, for B.C. Documents from Borough Engineer, Town Hall, Bury. Tenders by October 30.

Cheshire.—Extensions to Cheadle County Grammar School, for Girls (approximate value £50,000), for C.C. Applications to Edgar Taberner County Architect, County Hall, Chester, by October 21. Deposit £2 2s. payable to council and crossed Westminster Bank Ltd. Tenders by November 14.

Down.—Erection of a new pavilion at Redburn Playing Fields, Holywood, for C.C. Documents from the offices of the Education Committee, 7 Brunswick Street, Belfast 2. Deposit £3. Tenders by November 1.

Durham.—Following for C.C.: Ferryhill New Grammar Technical School—structural steelwork; Collierley County and Modern Schools—builder's work to boundary walls and access; East Merton R.C. (Aided) School—repairs to outer offices; Gilesgate Moor County School—builders work in transfer of demountable classrooms; Jarrow Croft Terrace Modern School—

renewal of wash basins; Jarrow Pine Street, St. Bedes R.C. Girls Modern (Aided) School—renewal of timber floors; Coundon St. Joseph's R.C. (Aided) School—fencing; New Lambton County School—fencing; Billingham North Central Kitchen—extract ventilation canopy; Durham Police Station—builder's work for car washing installation; Waive Crescent, Bishop Auckland—garage and kennel accommodation. Applications to County Architect, South Street, Durham, by October 25.

***Epsom and Ewell, Surrey.**—Construction of weighbridge pit and office, Central Depot, for B.C. Deposit £2 2s. Tenders by November 6.

Essex.—Erection of fire brigade workshops, Lexden, Colchester, for C.C. The work consists of a steel-framed single-storey building and a concrete-framed two-storey administration wing. Estimated cost £86,000. Submit names to H. Conolly, county architect, County Hall, Chelmsford, by Oct. 21. Quantities are expected to be available November, 1961.

Flintshire.—Building work in connection with installation of a passenger lift at The Lawn, Russell Road, Rhyl, for C.C. Documents from R. W. Harvey, county architect, Llwynegryn, Mold. Deposit £1 ls. (cheques payable to Council). Tenders by Nov. 7.

Great Yarmouth, Norfolk.—Internal redecoration of six schools and the external redecoration of two schools within the Borough to be let in seven contracts, for B.C. Contractors may tender for one or more of the contracts. The internal redecoration must be carried out between December 18, 1961, and January 6, 1962, although at most schools arrangements can be made to allow to decorate one or two classrooms in term time immediately after the holiday. The external redecoration is to be commenced in early November, 1961. Documents from F. Jackson, schools' architect, 22 Euston Road, Great Yarmouth. Deposit £1 ls. Tenders by November 2.

Hampshire.—Erection of additional classrooms, assembly hall, staff rooms, etc., at Portway Infant School, Andover, mainly in timber prefabricated construction, and having an area of approximately 6,000 sq. ft., for C.C. Applications to the County Architect, The Castle, Winchester, by October 27. Deposit £2 2s.

***Heston and Isleworth, Middx.**—Erection of public shelter at Jersey Gardens, for B.C. Tenders by November 9.

High Wycombe, Bucks.—Erection of four Batley Garages at Tyzack Road site, Totteridge, for B.C. Documents from J. A. Parkinson, borough engineer and surveyor, Municipal Offices, High Wycombe. Tenders by October 30.

Huntingdonshire.—Additional works (shelving, notice boards, partitioning, etc.), at St. Neots Secondary Modern School, for C.C. Documents from the Deputy County Architect, County Buildings, Huntingdon. Tenders by November 1.

Isle of Ely.—Painting of Littleport Bridge, span 106ft, width 18ft, approximately, for C.C. Work involved comprises the painting of the four main girders, deck supports and cross bracing deck soffit, hand rails and all other exposed steelwork. Documents from the County Surveyor, County Hall, March, Cambs. Tenders by October 30.

Kerry, Eire.—Alterations and additions to the Technical School, Killarney, for the Vocational Education Committee. Documents from D. J. O'Brien, quantity surveyor, 87 O'Connell Street, Limerick. Deposit £20 plans seen at the offices of P. J. O'Sullivan, architect, 14 Bridge Street, Tralee, the quantity surveyor's or at the Committee's Offices, Tralee. Tenders by November 3.

Kildare, Eire.—(a) Erection of dispensary at Leixlip and (b) reconstruction of the dispensary at Kildare for C.C. Documents from the County Secretary, St. Mary's Hospital, Naas. Deposit £5 5s. each set. Tenders by Oct. 30.

***Lancashire.**—Major development work at Blackburn Royal Infirmary (contract 1) and Hope Hospital, Salford (contract 2), for the Manchester Regional Hospital Board, applications by October 30.

Linlithgow, West Lothian.—All trades for alterations to the existing abattoir in Preston Road and an extension of approximately 1,350 sq. ft., for B.C. Documents from Arthur Swift and Partners, architects, 91 George Street, Edinburgh, or the Burgh Surveyor, 39/41 High Street, Linlithgow.

Liverpool.—Construction of improvements to 11 cottages, Kirkby, for City Council. Documents from City Architect and Director of Housing, Blackburn Chambers, Dale Street, Kingsway, Liverpool, 2. Deposit £2 2s., payable to the City Treasurer. Tenders by Nov. 1.

Loughborough, Leics.—Demolition of the existing air-raid shelters and erection of public conveniences in the Market Yard for B.C. Documents from John S. Bates,

borough surveyor, Southfields, Loughborough. Deposit £2 2s. Tenders by Nov. 3.

Loughborough, Leics.—Erection of a brick garage at Southfields for B.C. Documents from John S. Bates, borough surveyor, Southfields, Loughborough. Deposit £1 1s. Tenders by Nov. 3.

Macclesfield, Ches.—Erection of lock up garages as follows, for B.C.: Scheme 5R Tenyson Close, 10; scheme 10L Countess Road, 15. Documents from the Borough Architect's Department, 3 Jordangate, Macclesfield. Deposit £1 each set. Tenders by November 6.

Newcastle upon Tyne.—Alterations at the former police headquarters in Pilgrim Street to form offices for A Division, for City Council. Application in writing to the City Architect, 18 Cloth Market, Newcastle upon Tyne 1. Tenders by November 3.

Northern Ireland.—Alterations to and the construction of additional store at shop at 59 Slieveagallion Drive, Andersonstown, for Northern Ireland Housing Trust. Documents from the Trust, 12 Hope Street, Belfast 12. Tenders by October 27.

Plymouth.—Re-covering with new asphalt areas of flat roofing at the Education Offices, Cobourg Street, Plymouth, and blocks 28-30 Pottery Road, Devonport, for City Council. Documents from J. Ackroyd, city engineer and surveyor, City Engineer's Department, Guildhall, Plymouth. Deposit £3 3s. (cheques payable to Plymouth Corporation). Tenders by Nov. 8.

Preston, Lancs.—Erection of refuse disposal transfer station at Argyle Road, for B.C. Documents from the Borough Engineer and Surveyor, Municipal Building, Preston. Deposit £2 2s. Tenders by November 6.

Rowley Regis, Staffs.—Roughcasting of houses on the Council's Grace Mary estate, Oakham, and Tivdale Hall estate, Tivdale, for B.C. Tenders may be submitted for the whole of the work or for the portions specified in the form of tender. Documents from the Architect, Municipal Buildings, Old Hill. Tenders by October 25.

Smethwick, Staffs.—Internal alterations to the Law Courts, Crocetts Lane, for B.C., comprising the installation of a spiral staircase and toilet in the Juvenile Court retiring room. Written application to the Borough Engineer and Surveyor, Council House, Smethwick 40. Deposit £2 2s. crossed cheque payable to the Borough Treasurer, Smethwick. Tenders by November 8.

Southampton.—Extensions, alterations, new two-storey teaching block and playground, etc., at Moorhill Infants' School, for B.C. Applications in writing to Borough Architect, Civic Centre, Southampton, by October 21. Tenders by November 20.

Sowerby Bridge, Yorks.—Erection of 54 garages, including drainage and tarmacadam forecourt, at Woodcroft, Sowerby, Rooley Lane, Sowerby, and Beech Recreation Ground, Sowerby Bridge, for U.D.C. Documents from the Engineer and Surveyor, Beech Royd, Beech Road, Sowerby Bridge. Deposit £2 2s. Tenders by Nov. 13.

Wakefield, Yorks.—Construction of one pair of officers married quarters at Woodthorpe Park Drive, Sandal, Wakefield, for the West Riding Territorial and Auxiliary Forces Association. Apply in writing to the Secretary, West Riding T. and A. F. Association, 20 St. George's Place, York. Tenders by November 7.

Walsall, Staffs.—Erection of the West Midlands Training College, for B.C. Submit names by October 25.

Warrington, Lancs.—Alterations and brickwork shop extensions, phase II, technical college extension, Long Lane, Orford, for B.C. Documents from D. G. MacConville, architect, Bewsey Chambers, Bewsey Street, Warrington. Deposit £2 2s. Cheques payable to Borough Treasurer. Tenders by November 1.

West Hartlepool, Dur.—Erection of hall, branch library and clinic on the Owton Manor estate, for B.C. Documents from the Borough Architect, Municipal Buildings, West Hartlepool. Tenders by November 6.

West Riding.—Dismantling of a pre-fabricated West Riding classroom unit at Bramhope County Primary School, Breary Lane, Bramhope, near Leeds, and for transportation to and erection at Saddleworth Greenfield J.M.I. School, Shaw Street, Greenfield, near Oldham, for C.C. Documents from the Divisional Architect, Flint Street, Huddersfield. Tenders by November 14.

West Riding.—Internal (part) painting at Brook Lodge, Selby, for C.C. Documents from the Divisional Architect, Bishopgarth, Westfield Road, Wakefield. Tenders by Nov. 13.

Whiteabbey, Antrim.—(a) Main building contract; (b) electrical installation; (c) plumbing installation; (d) heating installation; in connection with the proposed extension to Immaculate Special School, Whiteabbey, for His Lordship, Most Rev. Daniel Mageean. Documents for (a) from John A. Tynan,

quantity surveyors, 33 Malone Road, Belfast, deposit £3 3s., and for (b), (c) and (d) from C. P. MacNally, consulting engineer, 141 Royal Avenue, Belfast, deposit £3 3s. Tenders by November 7.

Willerby, Yorks.—Conversion of side rooms into single rooms at De la Pole Hospital for Leeds Regional Hospital Board. Applications to the Architect to the Board, Park Parade, Harrogate, by noon, Oct. 24. Deposit £2 2s. (cheques payable to the Board and crossed). Plans seen at the office of the Architect to the Board or at the office of Wheatley and Houldsworth, architects, Savile House, Savile Street, Hull. Tenders by Nov. 16.

Worcester.—Redecoration of the following school kitchens, during the Christmas holidays 1961/62, for City Council: (23) Girls' Grammar School kitchen; (24) Rose Hill Open Air School kitchen; (25) Nuntery Wood Secondary Modern School kitchen; (26) Nuntery Wood Primary School kitchen. Documents from City Engineer and Surveyor, 22 Bridge Street, Worcester. Deposit £2 2s., cheques payable to Worcester Corporation. Tenders by November 6.

CLOTHING AND TEXTILES

Aberdeen.—Supply of uniforms, caps and waterproof coats, for City Council. Documents from the City Engineer's Office, 3 King Street, Aberdeen. Tenders by November 7.

Argyllshire.—Supply of police uniform clothing for County Police Force for the year 1961-62 as follows, for C.C.: (a) Jackets, trousers, greatcoats, breeches, caps, skirts and leather leggings; (b) shirts, collars, ties, leather gloves and stockings. Applications to the Chief Constable, Lochgilphead, by October 27.

Eastbourne, Sussex.—Supply of police uniform clothing, for B.C. Details of requirements and tender forms may be obtained upon application. Documents from the Chief Constable, Police Headquarters, Eastbourne. Tenders by November 11.

Ross and Cromarty.—Supply of uniform clothing including greatcoats waterproof coats, patrol jackets, trousers, caps, gloves, shirts, collars, and ties, for the year 1962/63, for County Constabulary. Documents from Finlay Munro, chief constable, Chief Constable's Office, Dingwall.

Wigan, Lancs.—Supply of uniforms, for B.C. Tenders by November 16.

DEMOLITION

Maldon, Essex.—Dismantling and removing the ladies' bathing station (south side) and the boat store (north side) at the Marine Lake, and for drawing and removing the piles on which the buildings stand, for B.C. These buildings may be inspected by arrangement with the Recreation Ground Keeper. Documents from the Borough Engineer, Municipal Offices, Maldon. Tenders by November 3.

Newtownards, Down.—Demolition and removal of store building at Portaferry Road, for B.C. Documents from the Borough Surveyor, Town Hall, Newtownards. Deposit £2. Tenders by October 24.

Newtownabbey, Antrim.—Demolition of premises known as Abbeyhill 306 Shore Road, for U.D.C. Documents from Allan R. Martin, clerk of the Council, Town Hall, Newtownabbey. Tenders by October 30.

ELECTRICAL

Bristol.—Supply and installation of a system of electrically illuminated and operated vehicle actuated road traffic control light signals at the Filton Road/Monks Park Avenue junction and for the limited annual maintenance of same after installation, for City Council. Documents from City Engineer and Planning Officer, Cabot House, Deaneley Road, Bristol, 1. Tenders by November 1.

East Riding.—Installation of electrical services at the proposed Norton County Secondary School and the proposed Norton Home for Aged Persons for C.C. Documents from the County Architect, County Hall, Beverley. Tenders by Nov. 6.

Farnham, Surrey.—Renewal of electrical installations in sixty-six houses on various estates, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, South Street, Farnham. Deposit £2 2s. Tenders by October 27.

Killeen, Armagh.—Electrical installation in new Customs and Excise Post, for the Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by October 26.

Lancashire.—Rewiring of the electrical installation at Haslingden County Secondary School, for C.C. Application to the County Architect's Department, P.O. Box 26, County Hall, Preston, by October 26.

Northern Ireland.—Following at the Royal Victoria Hospital, for the Northern Ireland Hospitals Authority: (a) Supplying and fitting of 5A switch socket outlets in medical staff bedrooms, 1st floor, Royal Maternity Hospital;

(b) painting of kitchen and kitchen store rooms, Royal Maternity Hospital. Documents from the Superintendent Engineer, Area Maintenance Department, Broadway. Tenders by October 24.

Sedburgh, Yorks.—Provision of television system to 220 houses, for R.D.C. Deposit £2. Tenders by November 8.

FENCING

Potters Bar, Middx.—Dismantling and removal of approximately 327 lin. yd. of close-board oak fencing from Parkfield Open Space (Billy Lows Lane boundary). The fence is in 9ft. panels, 5ft. 8in. to capping with 6ft., oak posts. Tenders to include an allowance for the purchase of the dismantled fence. The fence can be inspected by arrangement. Tenders to E. H. Walden, Wylyotts Manor, Darkes Lane, Potters Bar, by October 28.

Shephed, Leics.—Erection of concrete post and chain link fencing, Glenmore estate, for U.D.C., comprising approximately 600yd. of fencing with gates. Documents from the Surveyor, Council Offices, Shephed. Deposit £2 2s. Tenders by October 24.

GAS AND WATER SUPPLY

Andover, Hants.—Concrete service reservoir at Micheldever Road, for B.C. Deposit £2 2s. Tenders by November 17.

Baildon, Yorks.—Laying of water main in Pennithorne Avenue, for U.D.C., comprising approximately 460yd. of class B spun-iron pipe and of effecting necessary connections to existing mains and of incorporating fittings, all of which will be supplied by the Council. Documents from the Council's Surveyor, Town Hall, Baildon. Tenders by October 31.

Barnack, Peterborough.—Wittering Pilsgate water supply—part 1, for R.D.C. Deposit £2 2s. Tenders by November 3.

Burnley, Lancs.—Laying water main, Rowley, for B.C. Deposit £2 2s. Tenders by November 13.

South Cambridgeshire.—Rivey Hill reservoir and booster station, contract 5, for R.D.C. Deposit £5 5s. Tenders by November 7.

Stratford-on-Avon, War.—Laying water main from Cress Hill to Welford Pastures, for R.D.C. Deposit £2 2s. Tenders by November 23.

HARBOURS, PIERS AND SEA DEFENCE WORKS

Lymington, Hants.—Repair of sea outfall at Pennington Marsh, for B.C. Deposit £2 2s. Tenders by November 1.

Plymouth.—Removal, dry-docking repair, and replacement of the pontoon landing stage at North Corner Devonport, for City Council. Documents from J. Ackroyd, the city engineer and surveyor, The Guildhall, Plymouth. Tenders by November 13.

HEATING AND VENTILATING

Alnwick, Northumb.—Supply and installation of extractor fans and the necessary electrical installation at Northumberland Hall, for U.D.C. Documents from G. Beatty, town surveyor, The Council House, Wagonway Road, Alnwick. Tenders by October 24.

Blackpool, Lancs.—Following for E.C.: (a) Replacement of heating boilers at the following schools: Collegiate, Devonshire Infant, Hawes Side, Waterloo, Claremont Primary; (b) replacement of six intermediate sections to heating boiler at Revue School. Documents from the Chief Education Officer, 3 Caunce Street, Blackpool. Tenders by October 27.

Enniskillen, Fermanagh.—Domestic services, ventilation and modifications to heating at New Kitchen, R.U.C. Depot, for the Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast 1. Tenders by November 6.

Lancashire.—Improvements to the heating installation, at Chipping Brabins Endowed School, for C.C. Applications to the County Architect, P.O. Box 26, County Hall, Preston, by October 23.

Newtownabbey, Antrim.—(1) Mechanical engineering services, (2) sanitary engineering services, (3) electrical engineering services at the proposed new school buildings and including alterations and additions to the existing installations in the existing premises, of Belfast High School, New School Buildings at Ardilea, 740 Shore Road, Newtownabbey, for the Board of Governors. Documents from Oscar Faber and Partners, consulting engineers, 31 College Gardens, Belfast 9. Deposit £3 3s. each section cheques only. Tenders by October 30.

Taunton, Som.—Provision and installation of gas and electric water heaters, for B.C. Tenders by October 31.

HOUSING SCHEMES

Bournemouth, Hants.—Following at West Howe, for B.C.: Contract W.H.24(F), 24 flats in five blocks; contract W.H.12(G), 12 semi-

detached bungalows; contract W.H.10(C), 10 semi-detached houses. Documents will be available on October 23 from the Borough Architect, Room 106, Town Hall, Bourne-mouth. Deposit £2 2s. each contract. Tenders by November 21.

Bridgwater, Som.—Erection in permanent brick construction of 16 three-storey terrace houses with garages and 13 lock up garages, with necessary site works, fencing, drainage, etc., at St. Matthews Field and Albert Street, for B.C. Documents from the Borough Architect, 2 Taunton Road, Bridgwater. Deposit £2 2s. Tenders by November 13.

Bromsgrove, Worcs.—Forty houses and bungalows and 59 garages on Broad Street estate 3 and 5 houses on Charford estate 18, for U.D.C. Written application to the Engineer and Surveyor, Council House, Bromsgrove. Deposit £3 3s. Plans seen at the offices of the Engineer and Surveyor, Council House, Bromsgrove, or the Quantity Surveyor, Crump and Applin, National Provincial Bank Chambers, High Street, Bromsgrove. Tenders by November 22.

Cheshunt, Herts.—Completion of the building of a small detached house and all ancillary works, at Waltham Cross Playing Fields, Eleanor Cross Road, Waltham Cross, contract 391, for U.D.C. The contract will consist of carrying on with works which have already been started under a former, discontinued, contract. The job has reached the stage where most of the foundation works are complete, and brickwork is at damp-course level with damp-proof course laid. Documents from the Engineer and Surveyor, Manor House, Waltham Cross. Deposit £2. Tenders by November 3.

Chichester, Sussex.—Forty-seven flats for elderly persons in two- and three-storey blocks and 27 garages, at Spitalfield Lane, for B.C. Documents from the City Engineer and Surveyor, Greyfriars, North Street, Chichester. Deposit £2 2s. cheques payable to the Corporation of Chichester. Tenders by November 17.

Conway, Denbighs.—Ten unity bungalows and ancillary works at Marl Crescent, Llandudno Junction, for B.C. Documents from the Borough Engineer, "Bodlondeb," Conway. Deposit £2 2s. Tenders by November 22.

Croydon, Surrey.—Four houses and 33 flats on five sites, for B.C. Tenders by November 28.

Docking, Norfolk.—Eight bungalows, together with road and ancillary works, at Dunns Lane, North Creak, for R.D.C. Documents from G. E. Gibson, surveyor and housing officer, Council Offices, Docking, King's Lynn. Deposit £2 2s. Tenders by Nov. 15.

Ennerdale, Cumb.—Twelve bungalows at Main Street, Distington, including construction of a service road and sewers in connection therewith, for R.D.C. The work will also include the demolition of stone buildings on the site. Documents from the Surveyor, The Council Chambers Cleator. Deposit £3 3s. cheque only. Tenders by November 16.

Epping and Ongar, Essex.—Sixteen dwellings, Fyfield, for R.D.C. Apply to the Engineer and Surveyor, 209 High Street, Epping, by October 27. Deposit £2 2s.

Flint.—Forty unity traditional dwellings, together with all necessary site works in connection therewith, Duke Street redevelopment for B.C. Documents from the Borough Engineer and Surveyor, Municipal Offices, Earl Street, Flint. Deposit £3 3s. Tenders by October 30.

Great Yarmouth, Norfolk.—Sixty-two flats and 32 maisonnettes in four storey blocks, together with garages and stores, Priory Street/Bull's Lane, Gorleston, for B.C. Documents from the Borough Engineer's Office, Town Hall, Great Yarmouth. Deposit £2 2s. Tenders by November 10.

Halesowen, Worcs.—Six pairs of aged persons bungalows at Slims Gate, for B.C. Applications by noon, October 28. Deposit £2 2s.

Hambleton, Surrey.—R.D.C. invite applications from building and civil engineering contractors for their names to be added to the existing approved lists for new house construction, housing maintenance, civil engineering works, and housing site works. Applications, in the first instance from contractors not already on the Council's lists, to C. J. Wagg, clerk of the Council, Council Offices, Bury Fields, Guildford.

Havant and Waterloo, Hants.—Twenty-four houses, together with drainage and external works, at Milton Road, Waterlooville, for U.D.C. Documents from the Engineer and Surveyor, 1 Park Road North, Havant. Tenders by November 6.

Haverhill, Suffolk.—Block of six old person's bungalows, for U.D.C. Deposit £3 3s. Tenders by November 13.

Herne Bay, Kent.—Fourteen flats at Herne Street, for U.D.C. Tenders by November 8.

Hinckley, Leics.—Eight flats in two blocks of four at John Nichols Street, for U.D.C. Documents from the Surveyor of the Council,

Argent House, St. Mary's Road, Hinckley. Deposit £1. Tenders by November 3.

Inveraray, Argyll.—Five houses and attendant site works, at Fisher Row, for B.C. Applications to the Town Clerk, Town Hall, Inveraray, by October 30.

Manchester.—Ninety-five dwellings at Fern-down Road, Brooklands (contract 362), for City Council. Documents from the Director of Housing, Town Hall, Manchester 2. Tenders by February 12.

Manchester.—Ninety-seven dwellings at Royle Green Road, Northenden (contract 328), for City Council. Documents from the Director of Housing, Town Hall, Manchester 2. Tenders by November 27.

Middlesbrough, Yorks.—Following aged persons' dwellings, for B.C.: (a) 16 flats, 8 flatlets and 4 bungalows—Westerdale Road; (b) 7 bungalows—Rothbury Road; (c) 24 flats and 16 flatlets—Cottingham Drive, to be let either separately or as a combined contract. Documents from the Borough Engineer, Town Hall, Middlesbrough. Deposit £2 2s. Tenders by November 6.

Northern Ireland.—Ninety-five dwellings and 17 garages, together with ancillary and engineering works, at Rathcoole (Dev. 12), for the Northern Ireland Housing Trust. Documents from the Offices of the Trust, 12 Hope Street, Belfast. Deposit £3 Tenders by October 31.

North Lonsdale, Lancs.—Erection of one pair of two-bedroom bungalows at Rufus Lane, Swarthmoor, for R.D.C. Documents from the Council's Architectural Officer, Todbusk, Ulverston. Tenders by October 30.

Rochester, Kent.—Sixty-seven houses and 12 flats at Earl estate, for City Council. Deposit £3 3s. Tenders by December 5.

Rushden, Northants.—Redecoration of one room in each of 90 houses, for U.D.C. Documents from the Engineer and Surveyor, Council Buildings, Rushden. Tenders by October 27.

Southampton.—Thirty-one houses, Summit Way (contract B. 370) and two blocks five-storey flats at Townhill Park (contract B. 373), for B.C. Applications by 10 a.m. November 1.

Stocksbridge, Yorks.—Twenty-four one-bedroomed flats in blocks of 4, at Stocksbridge, for U.D.C. Documents from the Council's Surveyor, Town Hall, Stocksbridge. Sheffield. Deposit £5 5s. cheques payable to Council. Tenders by November 20.

Swaffham, Norfolk.—Type 59 bungalows in the following parishes for R.D.C.: Gooderstone (two), Hilborough (two) and Narborough (two). Documents from W. A. J. Spear, Council's architect, 36 Cattle Market Street, Norwich. Contractors may tender for all or any of the parishes mentioned. Deposit £2 2s. each parish. Tenders by Nov. 8.

Torquay, Devon.—Pair of old people's bungalows at Hapaway Road, for B.C. Written application to the Borough Surveyor, Town Hall, Torquay, by Oct. 30. Deposit £2 2s. (cheque payable to the Corporation of Torquay).

MATERIALS AND SUPPLIES

Belfast.—Supply of one mild steel tar still, for City Council. Documents from Gas Works, Ormeau Road, Belfast. Tenders by October 26.

Londonderry.—Supply of fuel oil for the power station at Coolkeeragh for the Electricity Board for Northern Ireland. Documents from Alan H. Parr, secretary, P.O. Box 2, Danesfort, 120 Malone Road, Belfast, 9. Deposit £5 5s. cheques payable to the Board. Tenders by Nov. 6.

Monmouthshire.—Supply of practical furniture for the Bedwas New Secondary Modern School for C.C. Documents from Sydney Leyshon, county architect, Queen's Hill, Newport, Mon. Tenders by Nov. 6.

Northern Ireland.—Supply of fluorescent lamp fittings to Government establishments in Northern Ireland during period ending May 31, 1962, for the Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by Oct. 20.

South Shields, Dur.—Supply of 1,500 2½ cu. ft. dustbins and lids, 17in. diameter at top and 15in. diameter at base, 22in. high; plain taper sided in accordance with B.S.S. 792/1947, galvanised after made, for B.C. Tenders stating delivery date and terms for the supply to the Cleansing Department Store, Victoria Road, South Shields, in plain sealed envelopes endorsed "Tenders—Dustbins," to R. S. Young, town clerk, Town Hall, South Shields, by Nov. 30.

PLANT AND MECHANICAL TRANSPORT

Camborne-Redruth, Corn.—Supply of one Bedford 35cw. 119in. W.B. petrol engined chassis/cab fitted with Spenborough 2½ cu. yd. timber dropside body and power operated EP. 42 tipping gear, for U.D.C. Tailboard to be swung top and bottom and detachable. Tyres

to be 7.50-16, 6 ply (front) and 8.25-16 12 ply (rear). Flashing direction indicators are to be fitted. The body of the vehicle is also to be fitted with ¼ in. steel bottom and 18g. steel lining to head, sides and tailboard. Tenders should include for delivery, number plates, painting and lettering and for calibration and stamping of the vehicle. Tenders in envelopes endorsed Tenders for Lorry to S. C. Wilson, clerk to the Council, Council Offices, Cambridge, by first post, October 31.

Durham.—Supply of 10 electrically operated diesel delivery pumps, for C.C. Further particulars from the County Surveyor, Aysley Heads, Durham. Tenders by Nov. 6.

Edinburgh.—Supply of two diesel pump appliances, and two petrol water tenders type B, for the South Eastern Fire Area Joint Committee. Further information from the Firemaster, Central Fire Station, Lauriston Place, Edinburgh 3. Delivery date not later than December 1, 1962. Tenders by October 25.

Huddersfield, Yorks.—Supply of eight Ford Thames Trader (5 cu. yd.) 108in. W.B. End Ram Tipplers (diesel engines), fitted all round with road tread tyres, for B.C. Bodies to be of wood to specification obtainable from Haulage Department, Vine Street, Leeds Road, Huddersfield. Successful tenderer to quote for and take eight Albion petrol engined vehicles in part exchange, which can be examined at above address. The Corporation do not bind themselves to accept the lowest or any tender. Tenders in envelope endorsed "Tender for Ford Trader Vehicles", to Harry Bann, town clerk, Town Hall, Huddersfield, by November 14.

Huddersfield, Yorks.—Supply of one rear loading compression type refuse collection vehicle (18/24 cu. yd.) fitted with a diesel engine and one 4½ cu. yd. low loading salvage trailer, and the taking in part exchange of one Karrier C.K.3 refuse collection vehicle of 11 cu. yd. capacity, side loading, for B.C. This vehicle may be inspected by arrangement with the Cleansing and Haulage Superintendent, Vine Street Garage, Leeds Road, Huddersfield. The Corporation do not bind themselves to accept the lowest or any tender. Tenders, in sealed envelopes endorsed "Tender for Refuse Vehicle", to Harry Bann, town clerk, Town Hall, Huddersfield, by November 14.

Ipswich, Suffolk.—Supply of one Holman Tractair 13 compressor for B.C. Documents from the Borough Engineer and Surveyor's Office, 19 Tower Street, Ipswich. Tenders by Nov. 13.

Newcastle-under-Lyme, Staffs.—Supply of one set of quintuple Lloyds Leda gang mowers for B.C. Documents from the Parks and Cemeteries Superintendent, 20 and 22 St. George's Chambers, 31 Merial Street, Newcastle, Staffs. Tenders by Oct. 31.

Northleach, Glos.—Supply of a Bedford House Refuse Collection Vehicle, for R.D.C. Documents from A. F. Barrett, clerk of the Council, Council Offices, Northleach. Tenders by October 30.

Peterborough.—Supply of Dale mobile alternator unit, for R.D.C. Tenders by November 14.

Swansea.—Supply of the following for B.C.: Two Morris 1000 Travellers; one B.M.C. type 5-ton petrol lorry; two B.M.C. J2 type trucks; one Morris 1000 car; two Morris 1000 5cw. vans; one B.M.C. type 10/12cw. van; one B.M.C. type 5-ton diesel lorry; one B.M.C. type 3-ton diesel lorry; one tower wagon (four-stage tower). Documents, giving details of the vehicles and of any vehicles to be taken in part exchange, from the Borough Engineer and Surveyor, The Guildhall, Swansea. Tenders by Nov. 10.

Woodbridge, Suffolk.—Supply of clay for the East Suffolk and Norfolk River Board. Tenders by October 31.

PLAYING FIELDS, PARKS, ETC.

Brierley Hill, Staffs.—Construction of hard tennis courts in King George VI park, Kingswinford, for U.D.C. Documents from the Engineer and Surveyor, Civic Buildings, Brierley Hill. Deposit £2 2s. Tenders by Nov. 2.

Shepshed, Leics.—Preparation and layout of about eight acres at Glenmore estate as playing fields for U.D.C. Documents from the Surveyor, Council Offices, Shepshed. Deposit £2 2s. Tenders by Oct. 24.

Wakefield, Yorks.—Proposed extension of Snapthorpe Schools playing fields, for City Council. The contract will include bulk excavation and fill, soiling and seeding. Documents from the City Engineer, Town Hall, Wakefield (Room 29). Tenders by Nov. 13.

Wallasey, Ches.—Land drainage and preparation of approximately 3½ acres of playing field at Birket Primary and Junior School for B.C. Documents from the Borough Architect, Town Hall, Wallasey. Tenders by Nov. 6.

RIVER AND FLOOD PREVENTION WORKS

***Lincolnshire.**—Deepening of Boygriff Drain, for the River Board. Deposit £5 5s. Tenders by November 13.

ROADS, BRIDGES AND SITE WORKS

Antrim.—Following for C.C.: Proposal 1217—reconstruction of the Glenavy to Upper Ballinderry section of route A.26, the work entails the construction of some 4,320 lin. yd. of new 27ft. wide carriageway, and all ancillary works, including the realignment of 10in. and 6in. water mains; proposal 1235—reconstruction of the junction between district road 65 and the Belfast-Antrim road, route T.7, at Dunadry, the contract provides for the construction of some 1,440 sq. yd. of 21ft. carriageway. Documents from County Surveyor's Office, County Courthouse, Crumlin Road, Belfast. Deposit £10 10s., proposal 1217 and £5 5s. 1235. Tenders by Oct. 31.

***Bedfordshire.**—Widening of London-Inverness trunk road, A.6 north of Clophill, for C.C. Deposit £2 2s. Tenders by November 3.

Bideford, Devon.—Pynes Lane housing estate Stucley Road extension (final stage), for B.C., comprising the construction of approximately 215 lin. yd. of tarmacadam carriageway 15ft. and 20ft. wide and the surfacing with tarmacadam of a further 60 lin. yd., the laying of water mains and other sundry work. Documents from H. J. Denne, borough surveyor, Municipal Buildings, Bideford. Deposit £2. Tenders by November 14.

***Bridgwater, Som.**—Completion of Colley Lane industrial site phase 1, for B.C. Deposit £2 2s. Tenders by October 27.

***Brighouse, Yorks.**—Private street works at Manley Street and Barton Street, for B.C. Deposit £1. Tenders by November 8.

Brighton, Sussex.—Completing Glydebourne Avenue (section 1)—length 110yd., for B.C. The works consist of macadam carriageway, kerb, flag-paved footways, surface drainage and other incidental works. Documents from D. J. Howe, borough surveyor, Engineer and Planning Officer, 26-30 King's Road, Brighton. Tenders by October 30.

Brighton, Sussex.—Completing Windmill Drive (part)—length 44yd., for B.C. The works consist of kerb, flag-paved footways and incidental works. Documents from D. J. Howe, borough surveyor, Engineer and Planning Officer, 26-30 King's Road, Brighton. Tenders by October 30.

Bromsgrove, Worcs.—Improvement of part of Wildmoor Lane, Catshill, for U.D.C. The approximate quantities of work are as follows: Excavation—300 cu. yd.; kerbing—100 lin. yd.; carriageway—200 sq. yd.; footpath—200 sq. yd. Demolition of old buildings, together with all ancillary works. Documents from the Engineer and Surveyor, Council House, Bromsgrove. Deposit £2 2s. Tenders by October 27.

Denton, Lancs.—Making up of Turner Street, Cross Street, Prubella Avenue, Clifford Avenue, for U.D.C. Documents from the Engineer and Surveyor, Town Hall, Denton. Deposit £2 2s. Tenders by November 6.

Dunbarton.—Diversion of Lenzie-Milton Road, B.757, at Lenzie Station, for C.C. Work includes earthwork, surface water drainage, masonry faced retaining walls, masonry boundary walls, and carriageway and footway formation. Approximate quantities—excavation 12,000 cu. yd.; retaining walls 600 cu. yd.; carriageway 1,800 sq. yd. Application to James R. Aitken, county surveyor, 88 College Street, Dunbarton.

***East Retford, Notts.**—Making up Grove Coach Road (part), for B.C. Tenders by November 11.

East Riding.—Construction of a car-park at the Anlaby County Primary School, for C.C. Application for plans and specification. Documents from the County Architect, County Hall, Beverley. Tenders by October 20.

***Enfield, Middx.**—Making up of six streets, for B.C. Deposit £5. Tenders by November 21.

Fifehire.—Constructing a road in continuation of the North Approach Road to the Forth Road Bridge, for C.C. The road extends to 4,500ft. in length and comprises dual 24ft. carriageways and a 15ft. central reservation with 12ft. wide grass verges, the over-all width at formation level being 87ft. Alterations to the side road, route B.916, involve an additional 1,500ft. of road works (single carriageway). The main road is in cut throughout most of its length, the excavation reaching a maximum depth of 35ft. In consequence very considerable earthworks are involved. Documents from the County Surveyor, Belfield, Cupar, Fifehire. Deposit £5 5s. plans seen at the County Surveyor's Office by appointment. Tenders by November 15.

Fifehire.—Realignment of Kirkcaldy Dunfermline Road, route A.907 at Inverlady, two

miles west of Kirkcaldy, for C.C., comprising the construction of a carriageway 24ft. wide, one footpath and one grass verge each 6ft. wide, together with the provision of surface-water drainage fencing, and the construction of a mass concrete retaining wall. The length of the new road is approximately 1,450ft. Documents from County Surveyor, Belfield, Fifehire. Deposit £2 2s. plans seen at the County Surveyor's office by appointment. Tenders by November 10.

***Guildford, Surrey.**—Carriageway, Longacre-Longfields and footpaths etc., Almshouse housing estate, for R.D.C. Deposit £2 2s. each set. Tenders by November 6.

***Harrow, Middx.**—Improvement to bridge MR 50, Marsh Lane, Pinner, for B.C. Deposit £2. Tenders by November 7.

***Havant and Waterloo, Hants.**—Construction of temporary car park north of Havant Station, for U.D.C. Tenders by November 6.

Hertfordshire.—Making up of Scrubbits Park Road, Radlett, for C.C. The road is 240yd. long with 16ft. carriageway two 6ft. footways and a verge. The work includes the provision of 230yd. of 6in. diameter surface water drain, new hardcore foundations to carriageway, surfacing with tarmacadam, provision of kerbing, construction of bituminous macadam footways and crossings. Documents from the County Surveyor's Department, County Hall, Hertford and plans seen by appointment. Tenders by November 8.

Hinckley, Leics.—Surfacing of part of Forrester's Road (length approximately 270yd.) and Forrester's Close (length approximately 90yd.), for U.D.C. Comprising kerbs, carriageway and footway foundations and surfacings, grass verges, vehicular crossings and incidental works. Documents from the Surveyor, Argent House, St. Mary's Road, Hinckley. Deposit £2. Tenders by November 6.

Keynsham, Som.—Beech Road improvement, for U.D.C., comprising reconstruction and surfacing of approximately 2,020 sq. yd. of carriageway, the construction of approximately 875 sq. yd. of asphalt footpaths, the laying of 527 lin. yd. of kerbing and channelling, and 230 lin. yd. of 9in. and 12in. diameter surface water sewer, together with the improvement of street lighting, and other incidental works. Documents from the Engineer and Surveyor, Council Offices, Keynsham, Bristol. Deposit £2 2s. Tenders by November 7.

Margate, Kent.—Making up of the following streets under the provisions of the Highways Act, 1959, for B.C.: Tyson Avenue; Laleham Gardens; Millmead Road (part); St. Mary's Avenue (part). Documents from the Borough Engineer, 38 Grosvenor Place, Margate. Tenders by November 4.

***Newcastle upon Tyne.**—Roadworks at Walker Road, Eastfield Avenue, for City Council. Tenders by November 16.

Northern Ireland.—Kerbing and repairs to roads, at the Northern Ireland Fever Hospital, for the Northern Ireland Hospitals Authority. Documents from the Secretary of the Northern Ireland Fever Hospital Management Committee, Purdysburn, Belfast.

Peterborough.—Making up (a) Garton Street and (b) Brewster Avenue (part), for City Council. Documents from the City Engineer, Town Hall, Peterborough. Tenders by November 6.

***Rawmarsh, Yorks.**—Making up Hutchinson Road, for U.D.C. Tenders by November 14.

***Reigate, Surrey.**—Widening and reconstruction of London-Brighton trunk road, A.23 at Redhill, for B.C. Tenders by November 16.

***Rowley Regis, Staffs.**—Surfacing of approach roads to crematorium, Powke Lane, for B.C. Deposit £2 2s. Tenders by October 28.

***Rugby, War.**—Road and sewer works at Stretton-on-Dunsmore housing site, for R.D.C. Deposit £3 3s. Tenders by November 17.

Sheerness, Kent.—Construction on the New Road site of about 4,340 super. yd. of tarred macadam carriageway and 683yd. run of surface water sewers, together with the construction of approximately 1,627 super. yd. of pre-cast concrete slab footpaths, and other ancillary works, for U.D.C. Documents from the K. Scott, engineer and surveyor, Council Offices, Trinity Road, Sheerness. Deposit £3 3s. Tenders by November 6.

***Surbiton, Surrey.**—Improvement of Maple Road (part), for B.C. Tenders by November 3.

West Riding.—Construction and making up of a total length of 324yd. of The Avenue, in the Parish of Collingham, in the Rural District of Wetherby, for C.C. Documents from the County Engineer and Surveyor, County Hall, Wakefield. Deposit £1. Cheques etc., crossed and payable to the West Riding Treasurer. Tenders by November 6.

West Sussex.—Making up of Halewick Lane, Sompting, for C.C. Documents from the County Surveyor, County Hall, Chichester. Deposit £2 plans seen at the offices of the County Surveyor, Westminster Bank Chambers, East Street, Chichester. Tenders by October 26.

Willesden, Middx.—Provision and laying of approximately 16,000 sq. yd. of thin coat fine cold asphalt surfacing to various roads within the Borough, for B.C. Documents from the Borough Engineer and Surveyor, Town Hall, Dyne Road, N.W.6, upon application in writing. Deposit £2 2s. Tenders by November 1.

Wilmslow, Ches.—Construction of car park off Alderley Road, for U.D.C., comprising approximately 4,865 super. yd. of new construction, 700 lin. yd. of kerbing, drainage and appurtenant works. Applications to the Engineer and Surveyor, Council Offices, Green Hall, Wilmslow, by Noon, October 27. Deposit £2 2s.

***Wokingham, Berks.**—Making up of Murray Road, for B.C. Tenders by November 6.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Bedfordshire.—Erection of a small pumping station and connecting the drainage to the main sewer at the aged persons' home, Caddington Hall, Markyate, for C.C. Submit names to the County Architect, Shire Hall, Bedford by October 23.

Cheltenham, Glos.—Laying of 130 lin. yd. of 9in. S.G.S. pipes together with 3 brick manholes 5ft. deep at Westal Court, Hatherley Road, for B.C. Documents from W. E. C. Bird, borough and water engineer, Municipal Offices, Cheltenham. Deposit £1 1s. Tenders by October 31.

***Chesterfield, Derbys.**—Northern area sewerage and sewage disposal scheme, part II, for R.D.C. Deposit £2 2s. Tenders by November 9.

Chingford, Essex.—Hampton Road surface water relief sewer, for B.C., comprising the laying of approximately 750 lin. yd. of 9in.-30in. surface water sewer, the construction of 14 manholes, reinstatement, and ancillary works. Documents from the Borough Engineer and Surveyor, Town Hall, The Ridgeway, E.4. Deposit £2 2s. Tenders by November 7.

Dungannon, Tyrone.—Construction of the Ballynakelly Sewerage Scheme, for R.D.C. The work consists of laying 879 lin. yd. 6in. diameter fire clay pipes, together with manholes and the construction of a sewage treatment works. Documents from the Office of Dungannon Rural District Council, Council Offices, Dungannon. Deposit £3 3s. An Engineer will meet intending offerers at Cranebrook Home, front entrance, Coalisland at 11 a.m., October 25 for the purpose of pointing out the site of the works. Tenders by November 6.

Esher, Surrey.—Construction of surface water sewer—Molesley Road (CX.153), West Molesley, contract 326, for U.D.C., comprising the provision and laying of approximately 495 lin. yd. of 9in. diameter to 18in. diameter concrete pipes, the construction of manholes, road gullies and connections, and ancillary works. Documents from the Engineer and Surveyor and Planning Officer, Council Offices, Esher. Deposit £1 1s. Tenders by October 31.

Havant and Waterloo, Hants.—Purbrook surface water drainage scheme, for U.D.C., comprising the construction of approximately 22 lin. yd. of 45in. diameter, 244 lin. yd. of 42in. diameter, 44 lin. yd. of 36in. diameter, 12 lin. yd. of 30in. diameter, 26 lin. yd. of 27in. diameter and 15 lin. yd. of 24in. diameter surface water sewers, the regrading and channelling of approximately 160 lin. yd. of open ditch, and ancillary works connected therewith. Documents from the Engineer and Surveyor, 1 Park Road North, Havant. Tenders by November 6.

Hillsborough, Down.—Supplying and laying of approximately 900yd. of 9in. diameter earthenware and 100yd. of 9in. diameter spun iron sewer together with the construction of a sewage disposal works and all other ancillary works at Ravernet near Hillsborough, for R.D.C. Documents from William Barklie Maxwell, consulting engineer, 5 University Terrace, Belfast 7. Deposit £3 3s. cheques payable to Council. Tenders by November 13.

Huntingdon and Godmanchester, Hants.—Laying of approximately 115 lin. yd. of foul sewer 9in. diameter and 115 lin. yd. of surface water sewer 12in. diameter, together with the construction of three inspection chambers in St. Peter's Road, from the four acre site to the existing inspection chambers on the main industrial sewer, for B.C. Documents from the Borough Surveyor's Office, Ambury House, Huntingdon. Tenders by October 30.

***Lowestoft, Suffolk.**—Main drainage, contract 1, for B.C. Deposit £5 5s. Tenders by November 1.

Macclesfield, Ches.—Following for R.D.C.: (a) The laying of 950 lin. yd. of 6in. diameter sewers at Castle Hill, Prestbury; and (b) the laying of 100 lin. yd. of 6in. diameter sewers at Church Lane, Gawsforth. Documents from the Engineer and Surveyor, Council Offices, King Edward Street, Macclesfield. Deposit £2 each job. Tenders by November 13.

Nantwich, Ches.—Supply of monorail equipment to sewage disposal works at Wistaston, near Crewe, for R.D.C. Documents from the Engineer and Surveyor, Stapely House, Nantwich. Tenders by November 6.

Ripley, Derbys.—Laying approximately 414 yd. of 12in. diameter concrete tube sewer with manholes at Derby Road, for U.D.C. Particulars from H. Hillier, surveyor, Town Hall, Ripley. Deposit £2 2s. Tenders by November 6.

STREET LIGHTING

***Loughborough, Leics.**—Street Lighting of trunk road, A.6, for B.C. Deposit £2 2s. Tenders by November 14.

Matlock, Derbys.—Provision and erection of 28 group A, lighting units consisting of steel columns, 140 watts sodium discharge lamps and auxiliary equipment, etc. on the trunk road A.6 from Mason Mills, Matlock, Bath, to the 30-m.p.h. limit, Derby Road, Cromford, for U.D.C. Documents from N. Chamberlain, engineer and surveyor, Town Hall, Matlock. Deposit £2 2s. Tenders by November 3.

***Swaffham, Norfolk.**—Supply and erection of 37 group A lighting columns, for U.D.C. Tenders by October 30.

Wellington, Salop.—Erection of 40/200 watt sodium street lamps on 30ft. steel columns as above, with lanterns, control gear, etc. on A.5 (trunk road) Holyhead Road, Ketley, for R.D.C. Applications to Albert E. Phillips, clerk, C/o Council Chambers, Tan Bank, Wellington, by October 21. Tenders by October 31.

INTERNATIONAL CONTRACT

***Victoria, Australia.**—Main line conveyors from Moorwell Open Cut-Haelwood project for the State Electricity Commission. Tenders by January 30.

AWARDS

BUILDING AND DECORATING

(See also Housing Schemes)

Abingdon, Berks.—Erection of a three-storey office block and a laboratory block at the research centre for Esso Petroleum Co. Ltd. Lanchester and Lodge, architects, 10 Woburn Square, London, W.C.1—W. E. Chivers and Sons Ltd., Devizes, Wilts.

Ashford, Middx.—Supplying and fixing Nuraphalte roofing at Abbotsford Secondary Modern School, for C.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Aston-on-Trent, near Derby.—Development: contract V—external site distribution, boiler-house and artisans' workshop installations at Aston Hall for Sheffield Regional Hospital Board—Arthur Ford, Ltd., Park Lane, Old Basford, Nottingham, £23,136.

Aylesbury, Bucks.—Site works in connection with the provision of 10 garages off Eskdale Road, Stoke Mandeville—Cooke (Luton), Ltd., 22 Dunstable Road, Luton, Beds. £758 (recommended, subject to Ministry approval).

Aylesbury, Bucks.—Erection of new factory buildings at High Street for Nestle and Co., Ltd.—Y. J. Lovell (Bucks.), Ltd., Beaconsfield, 1 Baring Road, Beaconsfield. Estimated cost £250,000. Beard, Bennett, Wilkins and Partners, architects, 101-3 Baker Street, London, W.1; A. L. Currie and Brown, quantity surveyors, Drayton House, 30 Gordon Street, London, W.C.1, and W. E. J. Budgen and Partners, consulting engineers, 54 Queen Anne Street, London, W.1. Work commenced.

Banstead, Surrey.—Provision of Weatherall Nuraphalte Roofing at council offices extension, for U.D.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Belfast.—Erection of the new Church of St. Columba in Whitecroft Parish—Davis and Rainey, Ltd., 143 Hunter Street, Belfast. Shanks and Leighton, 26 Wellington Place, Belfast, 1, are the architects, and Donald A. McNiven, Main Street, Larne, Co. Antrim, the quantity surveyor.

Belfast.—Alterations and extensions to form a diagnostic centre and the erection of a caretaker's residence at Greenwood House, Upper Newtownards Road, for City Council. J. H. Swan, city architect—Thomas S. Anderson, 309 Shore Road, Belfast. Work commencing November.

Billericay, Essex.—Construction of a factory and office, for John Tann, Ltd. G. W. Mills, architect, 43 Sanderstead Court Avenue, Sanderstead, Surrey—Ronald Lyon Construction, Ltd., Auckland House, New Zealand Avenue, Walton-on-Thames, Surrey. £230,000.

Boston, Lincs.—Provision of central linen and sluice room and improvements to Norton House, London Road, for Sheffield Regional Hospital Board—H. H. Adkins (Contractors), Ltd., Wyboston West Road, Boston, £6,550 (recommended).

Brentford and Chiswick, Middx.—Following for B.C.: Erection of a garage at Duke's Meadow allotments—S. T. Jagger and Son, Ltd., 60 Empire Road, Perivale, London, W.5, £1,996 (recommended); H. F. Davis (Brentford), Ltd., £2,340; R. Ashworth and Son, £2,273; S. T. Mace, Ltd., £2,182; Gates Bros., Ltd., £1,998.

Erection of a group surgery building at Brentford High Street—Alex. A. Shaw and Co., Ltd., 105a Mill Hill Road, Acton, London, W.3, £9,082 (recommended, subject to Ministry approval); R. and S. Guest, Ltd., £10,326; George Moss and Sons, Ltd., £11,632; Frederick Coyle and Co., Ltd., £10,889; S. T. Mace, Ltd., £9,065; Perrys (Ealing), Ltd., £10,537; White and Thomas, £10,702; W. J. Irish and Son, £9,340.

Canterbury, Kent.—Reconstruction and facing of the part of the city wall exposed by the demolition of the Co-operative Society premises, for City Council—Direct labour. Estimated cost £2,500.

Cardiff.—Following for City Council: Alterations and extensions at Brynyddon School W. Clarke (Llandaff), Ltd., 98 Cardiff Road, Llandaff, £50,859; terrazzo pavings and skirtings at Fairwater Grammar School—Italian Paving Co., Ltd., Goodrich Crescent, Newport, £1,497; rebuilding of the ambulance depot—R. B. Fear, Ltd. (1955) (Cardiff), 35 Park Place, Cardiff, £27,818 (recommended).

Cardiff.—Erection of a new warehouse at Caerphilly Road, for William Jones and Son, Ltd.—Davies, Middleton and Davies, Ltd., Phoenix Works, Caerphilly Road, Cardiff. Estimated cost £45,000. Work commenced.

Carlisle, Cumb.—Following for City Council: Stage 1 of extensions at the College of Art—F. Parkinson, Ltd., Mowbray Drive, Blackpool; 14 garages at Dene Crescent and four at Parkside—Direct Labour, £2,494 and £593 respectively (recommended).

Dagenham, Essex.—Following for B.C.: External painting at Rush Green Primary and Tripton Secondary Schools and internal painting at Goresbrook Secondary School (main building)—W. J. Bacon, 70 Larchwood Avenue, Collier Row, Romford, £675, £656 and £987 respectively; internal painting at Bishop Ward R.C. Secondary School—S. C. Grover, Ltd., 22 Stratfield Gardens, Barking, £2,463; painting at Goresbrook Secondary (wooden building), Marks Gate Infants and Beam Primary Schools—A. W. Adams (Dagenham), 95 Forest Road, Romford, £549, £797 and £643 respectively; painting at Lymington Secondary School (wooden building)—R. G. West, Ltd., 2 Church Street, Dagenham, £550; renewal of eaves gutters at John Perry Primary School—J. A. Porter and Co., Ltd., 219 West Ferry Road, London, E.14, £1,311 (recommended).

Dewsbury, Yorks.—Conversion of disused chapel in Dewsbury cemetery into a chapel of rest for B.C.—Walter West and Son (Dewsbury), Ltd., Highgate, Dewsbury, £3,448 (recommended).

Didcot, Berks.—Construction of a swimming pool, for Parish Council—A. J. Robey, Ltd., Rowstock, Didcot, £20,759 (subject to reductions).

Dublin.—Erection of a new 315-room hotel for Irish and Intercontinental Hotels, Ltd.—G. and T. Crampton, Hammersmith Works, Ballsbridge, Dublin. Estimated cost £14m. Sub-contractors—mechanical services—G. M. Hayden and Sons, Ltd., 7-12 Tavistock Square, London; electrical services—A. G. Bruty, Electrical Engineering Centre, 38 Dawson Street, Dublin; lifts—Otis Elevator Co., Ltd., 5 Leinster Street, Dublin. Michael Scott, architect, 19 Merrion Square, Dublin; Weyman C. Wing, 411 7th Avenue, New York, structural consultant, and Jarof Baum and Bolles, 730 Third Avenue, New York, are the mechanical consultants. Work commenced.

Dudley, Worcs.—Erection of shops fronting on to Fisher Street car park and Castle Street and construction of a car park for B.C.—A. J. Crump and Sons, Ltd., Aston Road, Dudley, £142,665 (recommended).

Enfield, Middx.—Supplying and fixing Nuraphalte roofing at new Edmonton County School, for C.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Grimsby, Lincs.—Enlargement of X-ray room at General Hospital for Sheffield Regional Hospital Board—Herbert Faulkner, Ltd., 47a Yarborough Street, Grimsby, £2,674.

Halesowen, Worcs.—Construction of public swimming baths for B.C.—Par Gas Construction Co., Ltd., 431 Stratford Road,

Shirley, Solihull, £189,625 (recommended subject to Ministry approval).

Harrow, Middx.—Remedial work at Grange County Primary School for B.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Harwell, Berks.—Provision of Weatherall Nuraphalte roofing at building 418 (maintenance sub-contract) for A.E.R.E.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Hendon, Middx.—Following for B.C.: Erection of sports pavilion at Cophall playing fields—W. M. Glendinning, Ltd., 915 Finchley Road, London, N.W.11, £35,985 (recommended, subject to Ministry approval).

Construction of 12 garages at Spur Road—George Wimpey and Co., Ltd., 26 Hammersmith Grove, London, W.6, £2,159 (recommended, negotiated tender, subject to Ministry approval).

Supply and erection of 33 Southern garden sheds and construction of concrete bases—Portable Concrete Buildings, Ltd., Ironside Works, East Adderbury, near Banbury, Oxon, £924, and Direct Labour, £264, respectively (recommended).

Hull.—Erection of a single-storey office building, Cottingham Road, for the Sailors' Children's Society. Fisher, Hollingsworth and Partners, architects, 23 Lowgate, Hull—Fenner, Panton and Co., Ltd., Londonborough Street, Hull, £11,728 (accepted); Geo. H. Panton and Sons, Ltd., £12,185; C. R. Barrett and Sons, Ltd., £13,343; Robinson and Sawdon, Ltd., £13,404; A. E. Stanworth, Ltd., £14,539; K. Cross (Doncaster), Ltd., £14,707. Work commencing November.

Huddersfield, Yorks.—First phase of Civic Centre project in Albion Street and High Street, for B.C.—John Radcliffe and Sons, Ltd., St. Johns Road, Huddersfield, £338,200.

Ipswich, Suffolk.—Remodelling the Westbourne Secondary Modern School for Boys, for B.C.—R. Bennett and Snare, Ltd., St. John's Road, Ipswich, £98,392 (subject to M.E. approval).

Islington.—Construction of a warehouse for The House of Selincourt—Ronald Lyon Construction, Ltd., Auckland House, New Zealand Avenue, Walton-on-Thames, Surrey, £117,000. Carl Fisher and Associates, architects, 56 Portland Place, London, W.1, and John De Dremacker and Partners, consulting engineers, 3 Southampton Place, London, W.C.1.

Kendal, Westmor.—First stage of a milk-drying factory at Mint Bridge, for Glaxo Laboratories, Ltd.—Taylor Woodrow Construction, Ltd., Ruislip Road, Southall, Middx. Estimated cost £200,000. Elliott, Cox and Partners, architects, 172 Buckingham Palace Road, London, S.W.1, and Bylander, Waddell and Partners, structural engineers, 169 Wembley Park Drive, Wembley. Work commenced.

Lambeth.—Provision of changing accommodation at Brockwell Park, for L.C.C.—George Newton and Hill, Ltd., 93 Southwark Bridge Road, London, S.E.1, £34,200 (accepted); T. R. Roberts (Builders), Ltd., £34,735; Frank Bilton (London), Ltd., £35,527; R. H. Lynn and Co., Ltd., £35,853; R. J. Truscott, Ltd., £36,878; W. H. Gaze and Sons, Ltd., £37,692; William Harbrow, Ltd., £41,000.

Lambeth.—Six flats and five garages at site 103 Jeffreys Road, for B.C.—Direct Labour, £20,978 (recommended); Bridge Walker, Ltd., £22,172; J. Jarvis and Sons, Ltd., £23,340; H. T. Oliver and Sons, Ltd., £23,876; A. T. Rowley (London), Ltd., £23,487.

Conversion into three flats of 20 Elmcourt Road for B.C.—Whyatt (Builders), Ltd., 225 Streatham High Road, London, S.W.16, £3,217 (recommended).

Leamington Spa, War.—Following for B.C.: Improvements and extensions to Crown Way shopping centre—P. A. Hopkins, Ltd., £10,663; rehabilitation of 174 houses at Shrubland Hall estate—T. Bates and Son, Ltd., Warwick Road, Kenilworth, £44,244; redecoration of Campion Terrace pumping station—J. H. Woodward (Contractors), Ltd., Eastfield Road, Leamington Spa, £1,235 (recommended).

Leatherhead, Surrey.—Construction of foundations and two-storey reinforced concrete framework for a furniture depository and garage at Fetcham Grove, for Bishop and Sons, Depositories, Ltd.; Clifford Tee and Gale, architects, 5 Buckingham Palace Gardens, London, S.W.1—Modular Concrete Co., Ltd., 1258-1260 London Road, London, S.W.16, £13,000. Work to commence November 1.

Leeds.—Following for City Council: Erection of public conveniences in Stonegate Road and Dewsbury Road—J. Tomlinson and Son, Ltd., Bath Road, Leeds, 11, £5,273; painting

work at police stations—Direct Labour, estimated cost £1,846; construction of a burial chapel and other works at Thrusscross—H. Johnson and Son (Farsley), Ltd., New Street, Farsley, £4,476 (recommended).

Twenty-four garages, four invalid carriage stores and 18 stores at Moor Grange—G. Wimpey and Co., Ltd., £5,742; 42 garages on the Raynville Road and Brooklands estates—West and Sons (Leeds), Ltd., £7,552; 52 garages on the Queenshill estate—N. B. Bell and Co., Ltd., £8,590 (extension of contracts, recommended, subject to Ministry approval).

Replacement of metal windows in 56 dwellings on the Wyther estate—Direct Labour (recommended). Estimated cost £8,181.

Replacement of metal windows on the Harehills estate—Direct Labour (recommended in lieu of previous tender). Estimated cost £10,597.

Lewisham.—Provision of changing accommodation at Beckenham Place Park, for L.C.C.—T. R. Roberts (Builders), Ltd., 2 Devonshire Road, London, S.E.23, £35,327 (accepted); Frank Bilton (London), Ltd., £35,970; George Newton and Hill, Ltd., £37,150; R. H. Lynn and Co., Ltd., £38,216; R. J. Truscott, Ltd., £38,293; W. H. Gaze and Sons, Ltd., £39,742; William Harbrow, Ltd., £48,000.

Leyton, Essex.—Additional painting and other work at Town Hall and Central Library, for B.C.—Szerelmey, Ltd., 277 Rotherhithe New Road, London, S.E.16, £931 (recommended).

Lincoln.—Following for Sheffield Regional Hospital Board: modernisation of two staff cottages at Branstons Hall—Hamiltons Builders (Lincoln), Ltd., Lodge Lane, Nettleham, £1,077; joiners' workshop at County Hospital—W. R. Weaver and Sons, Torkesey, Lincoln, £4,137; improvements to reception unit at St. George's Hospital—Charles R. Price, Barnsley Road, Doncaster, £12,906; builder's work for alterations to laundry at St. John's Hospital—Wm. Wright and Son (Lincoln), Ltd., Park Street, Lincoln, £1,800.

Lisnakea, Co. Fermanagh.—Extensions to factory for the English Sewing Cotton Co., Ltd.—P. Clarke and Sons, Ltd., Slush-hill Quarries, Lisnakea, Ferguson and McIlveen, architects, 15 College Gardens, Belfast, 9; McCarthy and Lilburn, quantity surveyors, Scottish Provident Buildings, Belfast, and McAuslan, Abbott and Partners, 16 Bedford Street, Belfast, 2, are the consulting engineers.

London.—Erection of shops, offices and residential accommodation on a site bounded by Tavistock Place, Hunter Street, Brunswick Square, Bernard Street, Herbrand Street, Holborn and St. Pancras for Marchmont Properties, Ltd.—Sir Robert McAlpine and Sons, 80 Park Lane, London, W.1. Architects, Sir Leslie Martin, in association with Mr. C. St. J. Wilson and Mr. P. G. Hodgkinson, The King's Mill, Great Shelford, Cambridge. C. Harman Hunt and Co., consulting engineers, 3-4 Balfour Place, London, W.1. Estimated cost £10m. Outline planning permission not yet received.

Manchester.—Following for City Council: Asbestos-cement roofing for street paviers workshop at College of Building—Blackwell, Stanistreet and Co., Ltd., Manchester.

Supply and erection of movable classrooms at Holy Name Roman Catholic Primary Schools—Vic Hallam, Ltd., Nottingham; foundations and finishing works—Bakewell (Builders), Ltd., 11a Thomas Street, Manchester, 14.

Sub-contractors for alterations to the police driving school at Police Buildings, Longsight; plasterer—Thomas Bros. (Stockport), Ltd., Stockport; plumber and glazier—John Nightingale and Co., Ltd., Manchester; painter—Kilbourns, Ltd., Manchester.

Structural steelwork for proposed workshops at the Police Buildings, Longsight—Bask Williams, Ltd., Springfield Works, Nantwich Road, Tarporley, Ches.

Erection of an old people's club at Bar-mouth Street, Openshaw—Vic. Hallam, Ltd. (all recommended).

Middlesbrough, Yorks.—Erection of telephone exchange at Eston Grange for the Ministry of Works—T.G. Construction, Ltd., Bowsfield Lane, Stockton-on-Tees.

Nailsworth, Glos.—External painting and treatment to external rendering of 46 houses at the Barnfield estate, Forest Green, for U.D.C. A. Denman, surveyor.—R. Jones and Partners, 18 Longfurlong Lane, Tetbury, Glos., £1,054 (accepted); Alfred Higgs (junior), £1,446; J. King (Builders), Ltd., £2,192 work just commenced.

Newark, Notts.—Development at Balderton Hospital, providing for water storage, water softening plant and bicycle sheds, for Sheffield Regional Hospital Board—Ernest Coleman, Ltd., 20 Diamond Avenue, Kirkby-in-Ashford, £8,182.

Newport, Mon.—Following for B.C.: Construction of foundations and ancillary block for four greenhouses at Glaslwlch nursery—Hinkins and Frewin, Ltd., High Cross Farm, Rogerstone, £21,716 (recommended).

Supply and erection of four greenhouses at Glaslwlch nursery—W. Richardson and Co., Ltd., North of England Horticultural Works, Darlington, £18,818 (recommended, negotiated tender).

Northumberland.—Erection of secondary school at Guide Post, for C.C. C. C. Brown, county architect—Gilbert Ash, Ltd., London. Estimated cost £193,000.

Oxford.—Erection of libraries at Manor Road, for Oxford University—William Sindall, Ltd., 347 Cherry Hinton Road, Cambridge. Estimated cost £500,000. Sir Leslie Martin, Architect, The Kings Mill, Kings Mill Lane, Gt. Shelford, near Cambridge; Monk and Dunstone, quantity surveyors, 9 Stone Buildings, Lincoln's Inn, London, W.C.1 and Ove Arup and Partners, structural engineers, 13 Fitzroy Street, London, W.1.

Plymouth, Devon.—Following for City Council: (a) erection of a new kitchen and dining classroom at North Prospect Primary School; (b) improvement of changing accommodation and construction of a new pavilion at Ham Playing Fields; (c) construction of a community mental health centre and child guidance clinic at Seven Trees and (d) maternity and child welfare clinic, mess-room and stores at Seven Trees—A. N. Coles (Contractors), Ltd., Sutton Road, Plymouth: (a) £8,320; (b) £3,760; (c) £39,069 and (d) £20,282 (recommended). Conversion of the old weights and measures office, Pottery Road, Devonport into a shop, etc.—Direct Labour (recommended, subject to Ministry approval). Estimated cost £2,222.

Potters Bar, Middx.—Erection of a storage building and office block at Cranbourne Road, for J. and L. Randall. Kenneth Lindy, Joseph Hill and Partners, architects, 24 St. Mary Axe, London, E.C.3. Allen Fairhead and Sons, Sydney Road, Enfield, Middx., £110,000.

Rugby, War.—External painting of 147 dwellings at the Hillmorton (2) Estate and 115 B.I.S.F. houses at the Overslade Estate for B.C.—Donald Smith, Ltd., 54 The Butts, Coventry, £1,742 and £4,025 respectively (recommended).

Saffron Walden, Essex.—Construction of 74 garages and concrete bases for B.C.—Bell and Webster, Ltd., Essex Road, Hoddesdon, Herts., £4,078 and A. S. Reynolds, 1 Beeches Close, Saffron Walden, £1,075 respectively (recommended).

Salford, Lancs.—Following for City Council: Alterations and decorations to Ingleside, Oakwood Park, Salford, 6, painting and decorating of 15 flats to be erected at Medway Close, Salford, 8, and 18 flats to be erected on land at the rear of 93 Eccles Old Road, Salford, 6—Direct Labour, £5,688, £1,249 and £1,470, respectively (recommended).

Saltash, Corn.—Modernisation of 28 properties at Lander Road, Newman Road and Glanville Terrace, for B.C.—Frank Mills and Sons, Ltd., 30 Fore Street, Saltash, £6,620 (recommended).

Scunthorpe, Lincs.—Erection of licensed premises at Grange Lane South for Samuel Smith Old Brewery (Tadcaster), Ltd.—W. Palaster, Ltd., Crosby Road, Scunthorpe. Wilburn and Son, architects, 11 South Parade, Doncaster, and Ellander and Saxby, quantity surveyors, Scarborough.

Sheffield.—Following for Regional Hospital Board: provision of two incinerators—builder's work for second chamber at City General /Fir Vale Infirmary—B. Powell and Son, Ltd., 37 Cavendish Street, Sheffield, 3, £2,640; builder's work for bed lift in Cliff Ward at Nether Edge Hospital—T. Wilkinson and Sons, Ltd., Olive Grove Works, Sheffield, 2, £3,652; completion of new villa block at Middlewood Hospital—Marsh and Davis, Sheffield, £43,129.

Sheffield.—Remodelling of the existing men's conveniences at Commonsides incorporating the construction of new women's conveniences for City Council—Direct Labour (recommended). Estimated cost £3,000.

Shoreham-by-Sea, Sussex.—Provision of Weatherall Nuraphalte roofing at Kings Manor Secondary Modern School for West Sussex C.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Slough, Bucks.—Construction of a 300 bed hospital at Wexham Park, for The North West Metropolitan Regional Hospital Board—Humphreys Ltd., 199 Knightsbridge, London, S.W.7, £2.4m. Powell and Moya, architects, 36 Great Smith Street, London, S.W.1; Felix J. Samuely and Partners, consulting structural engineers, 231 Gower Street, London, N.W.1, J. Roger Preston, mechanical and electrical engineers, 15 North Audley Street, London, W.1; Davis, Bellfield and Everest, 9 Ashley Place, London, S.W.1, quantity surveyors.

Southampton.—Erection of an arts building, including a Nuffield Theatre, for the University of Southampton—Hawkins Bros. (Gosport), Ltd., Westfield Road, Gosport, Hants, estimated cost £487,000. Basil Spence and Partners, architects, 1 Canonbury Place, London, N.1; Reynolds and Young, quantity surveyors, 329 High Holborn, London, W.C.1; Ove Arup and Partners, 13 Fitzroy Street, London, W.1, and G. H. Buckle and Partners, 2 Harrington Gardens, London, S.W.7, the consulting engineers.

Stockport, Ches.—Plumbing and gasfitting and felt roofing at St. Anne's R.C. Secondary School, for B.C.—A. R. Staite, Ltd., 15 King Street, Knutsford, £2,285 and Limmer and Trinidad Lake Asphalt Co., Ltd., Gorton Road, Manchester 12, £1,489 respectively.

Sunderland, Dur.—Redevelopment work at Roker for the Corporation seaside and entertainments department. T. Donkin, borough engineer—Tarmac Civil Engineering, Ltd., Bowsfield Lane, Stockton-on-Tees, £29,150.

Erection of Post Office sorting office at West Wear Street—Gordon Durham and Co., Moor Lane, East Boldon.

Swindon, Wilts.—Erection of the first stage of the Park Neighbourhood Centre for B.C.—A. J. Waite and Co., Ltd., New Malden, Surrey, £404,296 (recommended, subject to reductions and Ministry approval).

Taunton, Som.—Taunton livestock market, reorganisation of cattle section, for B.C., comprising demolition of pens and buildings, drainage works, walls and concrete flooring, and ancillary building work, in connection with the reorganisation of the cattle section at the livestock market, Priory Bridge Road—C. P. Unwin and Sons, Ltd., 33 St. Peter Street, Tiverton, Devon, £30,223. Work commenced.

Tottenham, Middx.—Improvements at Lynch Youth House for C.C.—Direct Labour (recommended). Estimated cost £3,930.

Tunbridge Wells, Kent.—Structural alterations and improvements to the milking parlour at Lodge Farm, Matfield, for B.C.—E. T. and D. A. Turner, Markets Heath, Brenchley.

Wandsworth.—Forty flats and 24 garages at 80 Victoria Street for Franthorn Investments, Ltd. W. J. Harvey architect, 324 Dollis Hill Lane, London, N.W.2—S. A. Thorne and Sons, Ltd., Osborne Terrace, Lee Road, London, S.E.3.

Wandsworth.—Erection of a divisional fire station at Old Town, Clapham, for L.C.C.—Galbraith Bros., Ltd., Crayford, Kent, £172,137 (accepted); Thomas and Edge, Ltd., £173,640; M. J. Gleeson (Contractors), Ltd., £174,116; Holloway Brothers (London), Ltd., £174,763; W. H. Gaze and Sons, Ltd., £181,863; Rice and Son, Ltd., £186,342; Rowley Bros., Ltd., £186,971; Kirk and Kirk, Ltd., £188,923.

Wanstead and Woodford, Essex.—Erection of 17 garages at Old Mill Court, for B.C.—Bell and Webster, Ltd., Essex Road, Hoddesdon, Herts., £1,094 (recommended).

Ware, Herts.—Erection of a single-storey dining/assembly hall, boiler-house and certain drainage and external works at Herts. Training School for the School Managers—Howard Farrow, Ltd., Golders Green Road, London, N.W.11, £65,333—J. Douglass Mathews and Partners, architects, 3 Ebury Street, London, S.W.1; G. H. Buckle and Partners, heating consultants, 2 Harrington Gardens, London, S.W.7; Jenkins and Potter, consulting engineers, 12-15 Great Turnstile, Lincoln's Inn Fields, London, W.C.1, and Frank Falkner and Partners, quantity surveyors, 39 Bedford Square, London, W.C.1.

Watford, Herts.—Following for B.C.: Supply of concrete portal frames for Wigganham depot extensions—Concrete Utilities, Ltd., Great Amwell, Ware, £1,226; wood block flooring for the Central Library extension—Acme Flooring and Paving Co. (1904), Ltd., River Road, Barking, Essex, £1,477; six precast shelters for various sites—Norman and Son (Marketing), Ltd., Windsor, Berks., £865 (recommended).

Re-roofing 40 houses at Harebreaks estate—H. J. Wedge and Sons, 99 High Road, London, N.15, £5,407 (recommended in lieu of previous tender).

Wembley, Middx.—Supplying and fixing Nuraphalte roofing at the secondary modern school for girls for C.C.—The Weatherall Roofing Co., Ltd., Whitehall Place, Gravesend, Kent.

Westminster.—Erection of a Roman Catholic primary school at Bessborough Place, London, S.W.1.—Griggs and Son, Ltd., 56 Victoria Street, London, S.W.1, £68,175.

Willesden, Middx.—External painting and general repairs at Wykenham School for B.C.—William Moss and Sons, Ltd., North Circular Road, London, N.W.2, £2,170 (recommended).

CLOTHING AND TEXTILES

Newport, Mon.—Supply of (a) uniform trousers, jackets and overcoats and (b) drivers, and conductors' gaberdine raincoats for Transport Department, for B.C.—Briggs, Jones and Gibson, Ltd., Newcastle-under-Lyme, Staffs., (a) £3,320 and (b) £615 (recommended).

DEMOLITION

Bradford on Avon, Wilts.—Demolition of 7, 8, 9, 10 and 11 Tory Place, 10 and 11 Wine Street, 17, 18 and 19 Ashley Road, 1, 2, 3, 4 and 5 Vine Cottages, for U.D.C. W. E. Underwood and Sons, Quantity Surveyors, 21 Gay Street, Bath; S. Smithers, Messrs. G. A. Meade and Co., 4 Three Houses, Sion Street, Radcliffe, Lancs., £344 (accepted); North West Demolition Co., £430; Pickford Demolition, £865; C. H. L. Kendall and Sons, £1,125; M. G. Millard, £2,750. Work commenced.

Carlisle, Cumb.—Demolition of properties included in the Carlisle housing (1) C.P.O. 1958, and 318, 320 and 322 Kingstown Road for City Council—R. Liddle, Ltd., Nelson Street, Carlisle, £1,087, and J. Percival, 17 Esk Street, Longtown, £50, respectively (recommended).

Dagenham, Essex.—Demolition of 1 and 2 Potters Cottages, The White House, Beacontree Heath and 12 Crown Street, for B.C.—Herbert G. Bowner, Ltd., 91 Waterloo Road, Romford, Essex, £45, £35 and £40 respectively (recommended).

Kidderminster, Worcs.—Demolition and clearing of the iron work from the Old Market for B.C.—Costello Plant Hire Co., Cheltenham, to pay council £557 (recommended).

Lincoln.—Dismantle and remove a redundant lead ply protective screen in Sutton Ward at St. George's Hospital for Sheffield Regional Hospital Board—Associated Electrical Industries, Ltd., 9 Market Place, Sheffield, 1, £300.

Manchester.—Demolition of former N.A.A.F.I. premises and reinstatement of land at Heaton Park Children's Centre, for City Council—Direct Labour (recommended).

Saltash, Corn.—Demolition of 26 and 27 Fore Street, for B.C.—Wadsworth Demolition and Excavation, Ltd., Sidmouth Road, Exeter, £180 (recommended).

Sheffield.—Demolition of following for City Council: Certain derelict buildings at Old Hall Farm, Richmond—Union Bros., 7 St. Andrew's Gardens, Boutham, Lincoln, £127; 88-96 Cricket Inn Road and the Royal George public house—Lindley Bros., Spink House Farm, Pothouse Lane, Stocksbridge, near Sheffield, £144 (recommended).

Tottenham, Middx.—Demolition of The Pound public convenience for B.C.—G. Ansell and Sons, 163 Roseberry Avenue, London, N.17, £35 (recommended).

Watford, Herts.—Following for B.C.: Demolition of 10-17 Carey Place—E. Bishop, 33 Eden Road, Holloway, London, N.7, £150; demolition of properties at Meeting Alley—W. Button and Son, Prestwich Road, Oxhey, £585 (recommended).

ELECTRICAL

Bangor, Caerns.—Electrical rewiring at Maces Tryfan estate for B.C.—Owen and Palmer, 70 High Street, Bangor, £2,095 (recommended).

Belfast.—Complete electrical installation at proposed diagnostic centre and caretaker's residence at Greenwood House, Upper Newtownards Road, for City Council. J. H. Swan, city architect—Jas. Johnston (Electrical), Ltd., 23 College Street, Belfast. Work commencing November.

Dagenham, Essex.—Following for B.C.: Wiring electrical lighting and power points at Oxlow Lane estate—J. K. Bromley, 41 Crossways, Gidea Park, Romford, £1,857; electrical work at Dagenham County High School (laboratory conversion), rewiring corridor lighting, etc., at Eastbrook Secondary School and general rewiring at Godwin Junior and Infants School—R. H. Treble (Electrical), Ltd., 180 Main Road, Romford, £943, £623 and £1,778 respectively (recommended).

Dudley, Worcs.—Installation of following for B.C.: Traffic signals in the Dudley Station Bridge area—Siemens and General Electric Railway Co., Ltd., East Lane, Wembley, Middx., £3,005; 957 13-amp. outlets and 88 15-amp. outlets in 303 houses included in the Castle smoke control area—Midlands Electricity Board, £2,948 (recommended).

Gateshead, Dur.—Electricity installation at the new Gateshead Boys' Grammar School—Campbell and Isherwood, Ltd., Newcastle upon Tyne, £12,438.

Luton, Beds.—Installation of electricity in flats at Whpperley Ring for B.C.—E.T. Electrical, 6 High Town Road, Luton, £8,456.

Manchester.—Following for City Council: Passenger lift for Didsbury training college hostel—A. and P. Steven, Ltd., Glasgow. Installation and/or modification of traffic control signals at the junctions of Albion Street/Great Bridgewater Street; Albion Street/Whitworth Street West and London Road/Fairfield Street—Automatic Telephone and Electric Co., Ltd., Strower House, 8 Arundel Street, London, W.C.2.

Electrical installation for conversion scheme at 1 Beech Mount, Harpurhey—Sadler and Kinsey, Ltd., 62 George Street, Manchester, 2.

Electrical installation and electrical under-floor and water heating installation in the Head Office Transport Building, Hyde Road, and alterations and additions to electrical installation at Princess Road Garage—E. M. Evans and Son, Ltd., Manchester.

Supply and erection of a passenger lift at Heyhead View—H. Breakell and Co. (Blackburn), Ltd., Whitebirk Drive, Blackburn (all recommended).

Newark, Notts.—Replacement of lift at Newark Hospital for Sheffield Regional Hospital Board—Etchells, Congdon and Muir, Ltd., Manchester, £2,993.

Nottingham.—Provision of three lifts at General Hospital for Sheffield Regional Hospital Board—Keighley Lifts, Ltd., Keighley, Yorks., £18,522.

Plymouth, Devon.—Installation of a lift at Ingleside Home, for City Council—Hammond and Campness, Ltd., Winston Cottage, Brixton, Yealton, Plymouth, £2,167 (recommended).

Plymouth, Devon.—Electrical installations in 24 flats and warden's flat at Southway, for B.C.—Madge and Son, Electra House, Portland Square, Plymouth, £2,449 (recommended).

Salford, Lancs.—Electrical installation at Ingleside, Oakwood Park, for City Council—J. Barnes (Electrical), Ltd., Salford, £2,334 (recommended).

Sheffield.—Electrical work for improvements to laundry at City General/Fir Vale Infirmary for Regional Hospital Board—W. H. Smith and Co. (Electrical Engineers), Ltd., 12 York Street, Manchester, £2,286.

Smethwick, Staffs.—Provision and installation of traffic signals at King's Head junction for B.C.—Siemens and General Electric Railway Co., Ltd., East Lane, Wembley, Middx., £1,546 (recommended).

Watford, Herts.—Electrical works at the Central Library for B.C.—L. J. Ive, Ltd., 69 Clarendon Road, Watford, £1,947 (recommended).

Woodhall Spa, Lincs.—Replacement of chair lift at Alexandra Hospital for Sheffield Regional Hospital Board—Etchells, Congdon and Muir, Ltd., 25 Mill Street, Manchester, 4, £2,624.

FENCING

Dagenham, Essex.—Provision of concrete palisade fencing in parks, for B.C.—Bell and Webster, Ltd., Essex Road, Hoddesdon, Herts, £3,869 (recommended).

Enfield, Middx.—Following for B.C. provision of fencing at Lavender Hill cemetery extension—Bell and Webster, Ltd., Essex Road, Hoddesdon, Herts, £1,101; fencing works at open spaces—Blakeney and Strange (Fencing), Ltd., Long Springs, Porterswood, St. Albans, Herts., £1,125 (recommended).

Wanstead and Woodford, Essex.—Provision of concrete fencing at Maldon Walk and Highclere and Woodbridge Court for B.C.—Bell and Webster, Ltd., Essex Road, Hoddesdon, Herts., £306 and £680, respectively (recommended).

GAS AND WATER SUPPLY

Bexley, Kent.—Following for B.C.: Piping of the watercourse from Glenmore Road to East Wickham Tip—Direct Labour (recommended). Estimated cost £9,028.

Reconstruction of the dam and outlet at Danson Park lake—Arnold and Nathan, Ltd., East Peckham, Tonbridge, £25,689 (recommended, subject to Ministry approval).

Braintree and Bocking, Essex.—Cocham Mill water scheme, contract 9—Panfield Lane works for U.D.C., comprising the construction of a three million gallon reinforced concrete reservoir, retaining walls, high-class brick booster station, concrete roadway, water pipe and drain laying, and ancillary works at their Panfield Lane site. Herbert Lapworth Partners, 25 Victoria Street, London, S.W.1—Vibrated Concrete Construction Co., Ltd., 27 Ashley Place, London, S.W.1, £83,645 (subject to Ministry approval).

Buxton, Derbys.—Laying of new water mains required in connection with the development for residential purposes of the land at Burbage Golf Links for B.C.—Regan and Almond, Ltd., £9,033 (recommended).

Cardiff.—Provision of a filtration plant at the Victoria Park paddling pool for City Council—Bell Bros. (Manchester 1927), Ltd., Calder Iron Works, Ashton Road, Denton, Manchester, £2,346 (recommended).

Dagenham, Essex.—Replacement of gas-holder at Riverside sewage disposal works, for B.C.—Robert Dempster and Co., Ltd., 31 Victoria Street, London, S.W.1, £9,900 (recommended).

Gomshall, Surrey.—Sinking, lining and testing of four boreholes in the Lower Greensand at Netley Mill, for Guildford, Godalming and District Water Board—George Stow and Co., Ltd., Reading Road, Henley-on-Thames, £29,646.

Hemsworth, Yorks.—Water supply extensions—Part 4 Fitzwilliam water supply, contract no. 3 for Joint Water Committee, Wilcon, Raikes and Marshall, Engineers, 33 Great Charles Street, Birmingham, 3—John O'Dea, Ltd., 145 Otley Old Road, Lawnswood, Leeds 16, £12,909.

Loughborough, Leics.—Construction of 12in. class D spun-iron mains linking the Dove and Derwent aqueducts, for B.C.—T. Woods (Leicester), Ltd., 7 Roseneath Avenue, Leicester, £3,095 (recommended).

Stockport, Ches.—Following for B.C.: Sinking a test borehole in the Woodford area—Boyles Bros. Drilling Co., Ltd., John Street Works, South Gosforth, Newcastle upon Tyne, 3, £2,810; construction of control house and Wellhead Chambers, contract N, at Goyt Valley—Z. and W. Wade (Whaley Bridge), Ltd., Buxton Road, Whaley Bridge, via Stockport, £3,541.

Tottenham, Middx.—Provision of space heaters and water heaters for 16 dwellings at Braemar Road—Kent Road for B.C.—Eastern Gas Board, £2,029 (recommended).

Wainford, Suffolk.—Construction of approximately 2,300yd. of 4in. asbestos-cement water main between Brampton and Westhall, near Halesworth, for R.D.C. A. P. I. Cotterell and Son, engineers, 54 Victoria Street, Westminster, S.W.1—Edward J. Edwards (Norwich), Ltd., Plumstead Road, Norwich, £3,153 (accepted, subject to Ministry approval); H. A. Holmes and Sons, Ltd., £3,714; Cubitt and Gotts, Ltd., £3,789; Edward Thompson, Ltd., £4,173; Arthur J. Holloway, Ltd., £4,635. Work to commence Dec.

Watford, Herts.—Supply of a automatic standby generating plant for the water-works at The Grove for B.C.—W. H. Allen, Ltd., £21,169 (recommended, subject to Ministry approval).

HARBOURS, PIERS AND SEA DEFENCE WORKS

Great Yarmouth, Norfolk.—Construction of a 15ft. wide timber jetty and a sea water pumping house and supply of sea water pumping equipment for B.C.—Millsbound, Ltd., £13,693, and Sigmund Pumps, Ltd., 52 Grosvenor Gardens, London, S.W.1, £1,030, respectively (recommended, subject to Ministry approval).

HEATING AND VENTILATING

Belfast.—Following for City Council: Complete oil-fired low pressure hot water space heating installation, at proposed diagnostic centre and caretaker's residence at Greenwood House, Upper Newtownards Road—Lawther's, Ltd., 193 West Circular Road, Belfast. Work commencing November.

Modifications and additions to low pressure hot water installation, and modifications and additions to plumbing installation at Fance Street Primary School—Henry McAteer and Co., Ltd., 12-14 Fleetwood Street, Belfast, 14. Work commencing December.

Chesterfield, Derbys.—Following works at Scarsdale Hospital, for Sheffield Regional Hospital Board—boiler—Spurr, Inman and Co., Ltd., Calder Vale Works, Wakefield, £5,000; installation—H. Hilton (Nottingham), Ltd., 64 Arkwright Street, Nottingham, £16,743; building work—Stanton

Bros., Ltd., Pond Street, Park Road, Chesterfield, £5,000 (recommended).

Electrical heating at Springbank House—H. C. Bates, Ltd., 36 St. Mary's Gate, Chesterfield, £1,128.

Dagenham, Essex.—Following for B.C.: Provision of gas-fired boilers at Borough Restaurant—W. G. Spittle, Ltd., Livingstone Road, London, E.15, £708; supply and installation of hot water services at Dagenham County High School (laboratory conversion) and replacing the domestic hot water supply boilers at Kingswood Secondary School and Robert Clack Technical School—Ashvale Engineering Co., Ltd., 147 Tilbury Road, London, E.10, £677 £737 and £710 respectively (recommended).

Doncaster, Yorks.—Additional boiler at St. Catherine's Hospital for Sheffield Regional Hospital Board—Spurr Inman and Co., Calder Vale Works, Wakefield, £8,928.

Harpden, Herts.—Heating installations at Harpenden swimming pool, for U.D.C.—Bastian and Allen, Ltd., £1,451 (recommended).

Hendon, Middx.—Installation of hot water and heating system at Clitterhouse playing fields for B.C.—Direct Labour (recommended). Estimated cost £3,500.

Londonderry.—Low pressure hot water heating, hot, cold and drinking water service at Londonderry T.E.C., Pennyburn Naval Yard, for Ministry of Commerce—Sanico Ltd., Hanover Place, Coleraine, Northern Ireland.

Manchester.—Following for City Council: Central heating and hot water boiler plant installation at Elizabeth Gaskell College Hostel and combined clinic Withington—Robt. Wood and Son (Bacup), Ltd., Lee Mill, Bacup, and R. Wild (Heating and Ventilating Division), Bolton, respectively.

Hot and cold water and gas installation at Harpurhey Technical School for Girls—John Turton and Sons, Ltd., Manchester; supply of a central heating installation for a home at Langho Colony—Robert Wood and Son (Bacup), Ltd. (all recommended).

Mansfield, Notts.—Replacement of boilers at Mansfield and District General Hospital for Sheffield Regional Hospital Board—Danks of Netherton, Ltd., 22 Bridge Street, Manchester, £13,964.

Nottingham.—Kitchen ventilation at Highbury Hospital, for Sheffield Regional Hospital Board—Wright and Summerhill, Ltd., Lupon Street, Leeds, 10, £647.

Plymouth, Devon.—Heating and cold water installations in 24 flats and warden's flat

at Southway, for B.C.—Johnson and Baxter (Plymouth), Ltd., Eagle Works, Sutton Road, Plymouth, £5,029 (recommended).

Rotherham, Yorks.—Pipework for boiler replacement and boiler at Rotherham Hospital, for Sheffield Regional Hospital Board—J. W. Harrison and Sons (Heating), Ltd., 208 Cobden View Road, Sheffield, 10, £844 and Cochran and Co. (Annan), Ltd., 5 St. Vincent Place, Glasgow, C.1, £2,406, respectively (recommended).

Sheffield.—Following for Regional Hospital Board—central heating, wards 10, 11 and 12 at City General Hospital—H. Hilton (Nottingham), Ltd., 64 Arkwright Street, Nottingham, £4,848; remodelling of engineering services (phase IV) and mechanical services for occupational therapy accommodation in spinal injuries unit at Lodge Moor Hospital—G. W. Dawes and Son (Heating and Plumbing), Ltd., 147 Holme Lane, Sheffield, 6, £6,053 and J. W. Harrison and Sons (Heating), Ltd., 208 Cobden View Road, Sheffield, 10, £608 (respectively).

Stockport, Ches.—Heating and hot water installation at St. Anne's R.C. Secondary School for B.C.—G. N. Haden and Sons, Ltd., 12 Harter Street, Manchester, 1, £11,340.

Stockton-on-Tees, Dur.—Heating installation at the Hardwick Secondary Modern School for B.C.—E. Dixon Barker and Son, Ltd., Charles Street, West Hartlepool, £22,020.

Stoke Newington.—Steam raising and heating plant and equipment at the new laundry, Milton Grove, for B.C.—Rosser and Russell, Ltd., Queen Caroline Street, London, W.6.

HOUSING SCHEMES

Aylesbury, Bucks.—Twenty-eight dwellings on the Warmstone estate, Waddesdon, for R.D.C.—Morris Builders (Oxford), Ltd., 7 Bodley Road, Littlemore, Oxford, £45,603 (recommended, subject to Ministry approval).

Bangor, Caerns.—Conversion of Plaslwyd High Street into three flats for B.C.—H. E. Williams, Ty Capel, Tyn-y-Celyn, Glan Conway, £4,238 (recommended).

Basingstoke, Hants.—Six four-bedroom houses at South Ham housing estate, 38th instalment, for B.C.—J. Anderson and Sons (Building Contractors), Ltd., £14,269 (recommended).

Bexley, Kent.—Nine additional dwellings at Hurst Place estate for B.C.—J. Anderson and Sons (Building Contractors), Ltd., Boundary Place, Sevenoaks Road, Orping-

ton (recommended, negotiated extension of contract).

Billingham-on-Tees, Dur.—Forty-three houses on the Low Grange estate for U.D.C.—E. Shaw, surveyor—Moore and Cartwright, Ltd., 44 High Street, Norton-on-Tees.

Chesterfield, Derbys.—Five hundred and forty-six houses at Loundsley Green estate for B.C.—M. J. Gleeson (Contractors), Ltd., Chesterfield Road, Sheffield, 8, £1,335,385.

Crawley, Sussex.—Three hundred and seven dwellings, each with a lock-up garage, on stage 1 of Furnace Green neighbourhood of the New Town for Development Corporation. H. S. Howgrave-Graham, architect—Carlton Contractors, Ltd., Carlton House, Ashley Road, Epsom, Surrey, £849,817.

Deal, Kent.—Twelve three-bedroom houses with garages at Freeman's Way for B.C.—G. Lewis and Sons (Dover), Ltd., 14 Wilfred Road, Dover, £33,785 (recommended, subject to Ministry approval).

Elstree, Herts.—Sixty-six flats and garages at Boreham Holt for the Waltham Cross Construction Co.—Alexander Flinder, architect, 30b Wimpole Street London, W.1—Allen Fairhead and Sons, Sydney Road, Enfield, Middx., £172,000.

Enfield, Middx.—12 flats and 22 houses at Ferns Nursery, for B.C.—Townsend and Collins, Ltd., 129 Goat Lane, Enfield, £74,571 (recommended, subject to Ministry approval).

Felling, Dur.—Eighteen bungalows and 21 garages at Keir Hardie Avenue for U.D.C.—R. Morton, surveyor—Direct Labour, £26,619 (accepted); John Clark and Son, Ltd., £29,630; R. Bowey and Son, Ltd., £30,893; and H. R. Atkinson and Co., £34,793.

Great Yarmouth, Norfolk.—Three bungalows at Maygrove estate for B.C.—H. A. Holmes and Sons, Ltd., South Ice House Hill, Gorleston, £4,445 (recommended, subject to Ministry approval).

Hastings, Sussex.—Fifteen dwellings at High Bank, six bungalows at Gurth Road, four flats at Belmont Road and four bungalows at the Rectory, Hollington, for B.C.—Hassocks Properties Development Co., Ltd., London Road, Hassocks, £45,575 (recommended, subject to Ministry approval).

Hemel Hempstead, Herts.—Ten houses at Edmunds Estate, King's Langley, for R.D.C.—E. J. Waterhouse and Sons, Ltd., Chipperfield, King's Langley, £17,567.



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Huntingdon and Godmanchester, Hunts.—Ninety-nine houses and 51 garages with roads and sewers, etc., at the L.C.C. overspill development site, for B.C.—Drabble Construction, Ltd., Cannon Street, Wellingborough, £223,319.

Islington.—Construction at Barnsbury estate (Fife Terrace site) of 42 maisonnettes and flats in a ten-storey block, 12 flats in a two-storey block and five two-storey terrace houses, together with four garages, 12 parking spaces and a play space, for L.C.C.—Rowley Bros., Ltd., Tower Works, Dunloe Avenue, London, N.17, £190,173.

Manchester.—Forty-four dwellings at Nuthurst Road, Moston, for City Council—F. Gannon and Son (Manchester), Ltd., 64 Osborne Road, Manchester, 19 (recommended, subject to Ministry approval).

Margate, Kent.—Conversion of Tivoli Cottage into two flats, for B.C.—Margate Building and Decorating Co., Ltd., 45 Dane Hill, Cliftonville, Margate, £2,475.

Nantwich, Ches.—One block comprising two one-bedroom and one two-bedroom bungalows at Brassey Bank, Woolstanwood, and one block of four single-bedroom bungalows at Sound, near Nantwich for R.D.C.—G. Scanlan, Englesea Brook, Crewe, £3,841, and C. Taylor and Co., Audlem, near Crewe, £5,584, respectively.

Plymouth, Devon.—Conversion and improvement of properties to provide 47 dwellings in Lode Street, for City Council—Direct Labour (recommended, subject to Ministry approval). Estimated cost £24,800.

Plymouth, Devon.—Following for City Council. H. J. W. Stirling, city architect—Thirty-three flats at Granby Way—F. J. Stanbury, Ltd., Alexandra Works, Alexandra Road, Plymouth, £70,850; 23 flatlets, etc., at St. Mary Street, Stonehouse—Selleck Nicholls Williams, Ltd., Trevarick House, St. Austell, Corn., £52,958.

Prescot, Lancs.—Forty houses, 92 flats and 28 garages for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing, Sussex.

Shephard, Leics.—Erection of 14 houses for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.

Skegness, Lincs.—Erection of 16 houses for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.

Southport.—Fifty-six houses in traditional brick construction on the Staveley Road housing site, Ainsdale, for B.C.—W. L. Lowry, borough architect—Sir Robert Lloyd and Co., Ltd., Port Causeway, Bromborough, Ches., £125,814. Work commencing Nov. 20.

Southwark.—Construction at Haddonhall estate of 41 flats in an eleven-storey block and five maisonnettes and two flats in a three-storey block, together with 22 tenants' stores and 20 garages with roof garden, for L.C.C.—Thomas McInerney and Sons, Ltd., Watford, Herts., £169,333 (accepted); Kirk and Kirk, Ltd., £169,648; Stewart and Partners, Ltd., £172,872; W. J. Whittall and Son, Ltd., £173,928; Griggs and Son, Ltd., £174,428; Wilson Lovatt and Sons, Ltd., £174,440; Tersons, Ltd., £178,775; Ward and Paterson, Ltd., £179,660; W. J. Simms, Sons and Cooke, Ltd., £181,432.

Spennorth, Yorks.—Two shops and two flats for B.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing, Sussex.

Stepney.—Construction at Stifford estate of 36 maisonnettes in two four-storey blocks together with 20 garages and 14 tenants' stores at Cherry Place site, and the

construction of 96 maisonnettes in five four-storey blocks, six two-storey terrace houses and three shops, together with 14 garages, 14 parking spaces and 37 tenants' stores at Clive Street site, for L.C.C.—Tersons, Ltd., 4 Dollis Park, London, N.3, £419,763 (accepted); Wates, Ltd., £427,085; Thomas McInerney and Sons, Ltd., £429,897; W. J. Simms, Sons and Cooke, Ltd., £436,384; Rowley Bros., Ltd., £445,314; Rush and Tompkins, Ltd., £449,980; A. T. Rowley (London), Ltd., £450,102; Kirk and Kirk, Ltd., £450,120; Griggs and Sons, Ltd., £476,422.

Sunderland, Dur.—Following for B.C.: Eighteen houses on the Thorney Close estate, nine on Hylton Red House estate, and 14 on the Town End Farm estate—Direct Labour; 20 houses on the Hylton Red House estate, and 24 on Thorney Close estate—T. Stewart, Peacock Street West, Sunderland.

Todmorden, Yorks.—One block of four flats of traditional construction, for B.C.—Herbert Hardy (Todmorden), Ltd., Victoria Works, Todmorden, £5,801.

Tottenham, Middx.—Following sub-contractors for 16 dwellings at Braemar Road/Kent Road, for B.C.: piling—Holm Press Piles, Ltd., Leads Road, Hull, £3,175; reinforced concrete work—Brick Flooring Construction, Ltd., £6,051; doors—Southern, Ltd., 23 Stockwell Street, London, S.E.10, £306; balustrading—G. Wright (London), Ltd., £996; insulating screeds—Regent Surfaces, Ltd., £883 (recommended).

Tunbridge Wells, Kent.—Erection of a further 48 dwellings at Sherwood estate for B.C.—William Ellis (Etchingham), Ltd., High Street, Etchingham, £77,715 (recommended, negotiated tender, subject to Ministry approval).

Wakefield, Yorks.—Twenty-eight one-bedroom flats in Gloucester Road, 24 in Alverthorpe Road, 12 in Denhale Avenue, 12 in Queen Elizabeth Road and 12 on the Kettlethorpe estate for the City Council. J. N. Sedgwick, city engineer—Harlow and Milner, Ltd., Wakefield, £112,681.

Watford, Herts.—Thirty-eight dwellings and 19 garages, etc., at Holywell estate for B.C.—E. J. G. Morgan, Ltd., Cowley Mill Road, Uxbridge, Middx., £71,814 (recommended, subject to Ministry approval).

Weardale, Dur.—Ten old people's bungalows on the Lydgate estate, Wolsingham, for R.D.C.—J. Lawton, architect, Fairfield, Stanhope—W. Stobart, Billy Mill, Crook, Co. Durham.

West Hartlepool, Dur.—Forty-four houses on the Rift House estate and 29 in the central area of the town for B.C.—A. G. Sinclair, borough architect—G. M. Pearson and Son, Front Street, Hetton, Co. Durham.

MATERIALS AND SUPPLIES

Dagenham, Essex.—Supply of metal windows, rooflights and internal screens for new transport workshops, for B.C.—Crittall Manufacturing Co., Ltd., 210 High Holborn, London, W.C.1, £4,063 (recommended).

Leeds.—Supply of following for City Council: Stone for Swinsty reservoir—Johnson's Wellfield Quarries, Ltd., Crossland Hill, Milnsbridge. Estimated cost £2,147.

Stone for repairs to Swinsty reservoir by-wash—A. R. Briggs and Co., Ltd., Horsforth (recommended). Estimated cost £1,200.

Plymouth, Devon.—Supply of the following for City Council: Concrete pipes—Sharp, Jones and Co., Ltd., Parkstone, Dorset,

£2,358; concrete manholes—Teign Valley Concrete Co., Ltd., Trusham, Newton Abbot, £563 (recommended).

MISCELLANEOUS

Leicester.—Mortuary refrigeration at Leicester Isolation and Chest Unit for Sheffield Regional Hospital Board—W. Potter and Sons (Contractors), Ltd., Grasmere Street, Leicester, £3,480.

Sutton-in-Ashfield, Notts.—Mortuary refrigeration at King's Mill Hospital for Sheffield Regional Hospital Board—Kirk Bros. (Mansfield), Ltd., 112 George Street, Mansfield, £2,771.

PLANT AND MECHANICAL TRANSPORT

Bexley, Kent.—Supply of two 25 cu. yd. dual tip refuse collection vehicles with towing attachment, for B.C.—Glover, Webb and Liversedge, Ltd., 561 Old Kent Road, London, S.E.1, £2,811 each (recommended).

Dewsbury, Yorks.—Supply of two Ford Thames 10-12cwt. vans for B.C.—Grams of Dewsbury, Ltd., £915 (recommended) after deduction of allowance for old vehicles.

Enfield, Middx.—Supply of following for B.C.: one Ferguson tractor and mower—Brown's Industrial Equipment, Ltd., Leighton Buzzard, Beds., £1,283 (less £50 allowance for old vehicle); three Bedford 135 inch wheel-base tipping trucks—Arlington Motor Co., Ltd., 25 Vauxhall Bridge Road, London, S.W.1, £4,378 (less £460 allowance for old vehicles); two Dennis 1,000 gallon gully/cesspool, two Dennis side-loading refuse collection and four Dennis rear-loading compression type refuse collection vehicles—Dennis Bros., Ltd., Guildford, Surrey, £6,524, £4,370 and £14,458 respectively (recommended).

Hastings, Sussex.—Supply of one 50 cu. yd. Shelvoke and Drewry TY-type Pakamatic automatic loading refuse collection vehicle for B.C.—Skinners (Hastings), Ltd., Western Road, St. Leonards-on-Sea, £4,412 (recommended).

Hemel Hempstead.—Supply of long wheel-base utility truck for B.C.—Wm. Cowper, Ltd., Catherine Street, St. Albans, £925.

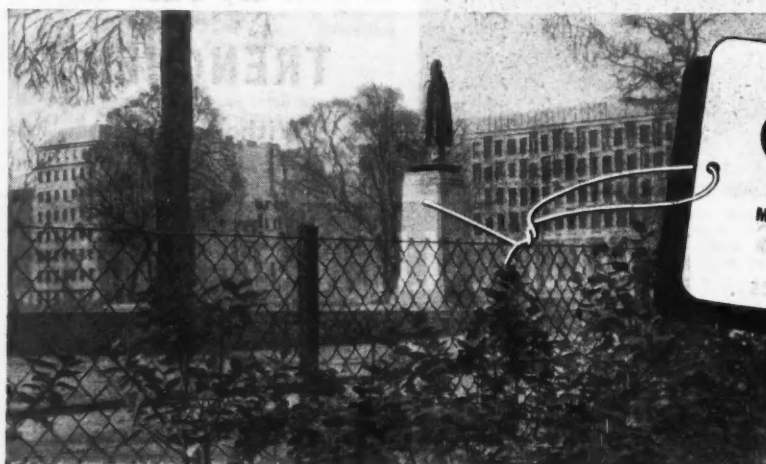
Leeds.—Supply of following for City Council: Four 5cwt. motor vans—Central Garage, Ltd., Woodhouse Lane, Leeds, 2, £1,478; one rotary drum drier for asphalt plant—Millar's Machinery Co., Ltd., 67 Amberley Road, Leeds, 12, £507 (recommended).

Leyton, Essex.—Supply of nine S.D. T.W. type fore and aft tipping refuse collection vehicles for B.C.—Shelvoke and Drewry, Ltd., Letchworth, Herts., £3,204 per vehicle, plus £535 for the provision of container hoisting equipment and trolley for one vehicle (recommended).

Manchester.—Supply of a Ford Thames Trader prime mover for City Council—H. and J. Quick, Ltd., Chester Road, Manchester, 16 (recommended).

Salford, Lancs.—Supply of following for City Council: One B.M.C. 5-ton drop-side truck—Green and Zonis, Ltd., 246 Deansgate, Manchester, 3, £1,107; one B.M.C. 30cwt. van—City Garage (Salford), Ltd., 361 Bolton Road, Salford, 6, £806; one 40ft. Simon hydraulic platform mounted on a Dennis 5-ton chassis and complete with workshop—Dennis Broth, Ltd., Guildford, Surrey, £4,480 (recommended).

Watford, Herts.—Supply of the following for B.C.: One transporter crane for the salvage shed at Wigganhill Depot extensions—British Monorail, Ltd., Wakefield Road, Brighouse, Yorks., £1,134; one



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gully and cesspool emptier—Shelvoke and Drewry, Ltd., Letchworth, £2,960 (recommended).

PLAYING FIELDS, PARKS, ETC.

Brownhills, Staffs.—Development of a south shore recreational centre including the formation of an embankment alongside the reservoir, together with a boating lake, children's paddling pool and model yachting pool at Chasewater Reservoir for U.D.C.—Tarmac Civil Engineering, Ltd., Wolverhampton, estimated cost £116,000. C. H. Hunt, engineer and surveyor, and Brian Colquhoun and Partners, consulting engineers, Upper Grosvenor Street, London, W.1. Work just commenced.

Enfield, Middx.—Following for B.C.: Layout of the Aldersbrook Avenue open space—Turfsol, Ltd., 58 Westcombe Hill, London, S.E.10, £4,540; layout of part of the Enfield playing fields—H. L. Holdrup and Sons, Ltd., 139 Bells Hill, Barnet, Herts., £3,932 (recommended).

Enfield, Middx.—Construction of sports facilities at Ambrose Fleming Secondary School for C.C.—Grassphalte, Ltd., 90 High Street, Hampton Hill, Hampton, £3,250 (recommended).

Margate, Kent.—Construction of two tennis courts at Beach Avenue, Birchington, for B.C.—W. H. Gaze and Sons, Ltd., 19-23 High Street, Kingston-upon-Thames, £2,171, (recommended, subject to Ministry approval).

Sheffield.—Landscaping works in connection with Middlewood Road and Prince of Wales Road in-filling site development for City Council—Direct Labour £5,000 and £3,317, respectively (recommended, subject to Ministry approval).

RAILWAY ENGINEERING

British Railways.—Following contracts placed:

Eastern Region:

Alterations to existing building and provision of concrete slab for new building for machine accounting centre, Peterborough—Bernard Stokeley, Ltd., Rose Gardens, Eastfield, Peterborough, Northants.

Construction of a new signal box at Boultham Junction, Lincoln—Wellerman Bros., Ltd., Dun Street, Sheffield, 3.

Supply of one fork lift truck—Ransomes and Rapier, Ltd., P.O. Box No. 1, Water-side Works, Ipswich, Suffolk.

Supply and erection of an electrical installation at Melton Constable station, goods depot and yard—Bowers and Barr, Ltd., Service House, 24 Regent Street, Great Yarmouth, Norfolk.

Reconstruction of awnings and resurfacing of down platform at Lincoln St. Marks station—Wm. Proctor and Sons, Ltd., 54 Denby Street, Sheffield, 2.

Reconstruction of awnings over down and up platforms, provision of new waiting room to up platform and ancillary works at Louth station—Wm. Proctor and Sons, Ltd., 54 Denby Street, Sheffield, 2.

Provision of heating installation together with boilers, plant, etc., and hot water services including external heating mains for the district and signal engineers' workshops, signal engineers' stores and district and signal engineers' offices and messroom at Marshgate Yard, Doncaster—The Freeman Heating Co., Ltd., 314-314a Balham High Road, Balham, London, S.W.17.

General repairs to air shafts and tunnel lining in Clabrough tunnel, between Retford and Sturton—Thomas Fletcher and Co., Ltd., Forest Road, Mansfield, Notts. Southern Region:

Extension of electrification: engineering works at Ashford (Kent)—John Mowlem and Co., Ltd., London, S.W.1.

Effingham Junction: station renovations—P. and M. Contractors, Ltd., London, S.W.4.

Portsmouth Harbour: station renovations Maurice Hill, Ltd., Horndean, Hants.

Wadebridge: cleaning and painting of bridge—Maurice Hill, Ltd., Horndean, Hants.

Brookwood: reconstruction of bridge—The Butterley Co., Ltd., Butterley, near Derby.

Blackfriars: dismantling and removal of redundant wharf—R. G. Odell, Ltd., Shepperton, Middx.

Elmers End: repairs to station—Aubrey Watson, Ltd., Henley-on-Thames, Oxon.

London (Western) District: felling and lopping of trees—Bagshott Sawmills, Ltd., Camberley, Surrey.

Coulsdon North: reconstruction of Star Lane Bridge—The Cleveland Bridge and Engineering Co., Ltd., London, S.W.1.

Waterloo Station: recladding of roofs—Durable Asphalte Co., Ltd., London, N.1.

Canterbury West: extension to warehouse R. Corben and Son, Dover, Kent.

Fawley: drainage works at Frost Lane—G. J. Furneaux, Ltd., Christchurch, Hants. Blackfriars-Nunhead—repairs to viaducts—Homan and Rodgers, Ltd., Cheltenham, Glos.

Pokesdown: station renovations—Bromby and Hoare, Ltd., Poole, Dorset.

Wandsworth Town: reconstruction of Point Pleasant Bridge—The Butterley Co., Ltd., Butterley, near Derby.

Surbiton: station renovations—Alfred Bagnall and Sons, Ltd., Teddington, Middx.

Brighton and Eastleigh District: welding of rails—Thermit Welding (Great Britain), Ltd., Rainham, Essex.

RIVER AND FLOOD PREVENTION WORKS

Nuneaton, War.—Dredging and cleaning the River Anker from the Attleborough Road Bridge to the town centre for B.C.—J. W. Chorley, Ltd., Atherstone (recommended). Estimated cost £976.

ROADS, BRIDGES AND SITE WORKS

Basingstoke, Hants.—Final carriageway surfacing and construction of footpaths and verges at Western Way, Mansfield Road and Baird Avenue for B.C.—Morris and Pink, Blue Haven, Reading Road, Hook, £9,922 (recommended).

Beeston and Stapleford, Notts.—Widening and reconstruction of Nottingham Road for U.D.C. S. C. Moppett, engineer and surveyor—H. Stirling and Sons, Ltd., 73 Main Street, Kimberley, Nottingham, £7,674 (accepted); E. Reader and Sons, Ltd., £8,535; W. Prestwich and Sons, Ltd., £10,729; Better Roads, Ltd., £8,821.

Berwickshire.—London-Edinburgh-Thurso trunk road A.1.: Reconstruction of road in the vicinity of the Manse Bends, Burnmouth, extending to a length of 1,100 lin. yd. for C.C.—Rodgers (Builders), Ltd., Earlston, £41,064. Work just commenced.

Bristol.—Construction of the New Bedminster Bridge, for City Council. Work includes construction of a 100ft. span prestressed concrete beam bridge, reinforced concrete abutments and wing walls.—A. E. Farr, Ltd., Station Road, Westbury, Wilts, estimated cost £80,000.

Cardiff.—Following for City Council: Improvement of Downton Lane—Maberly Parker, Ltd., Ynys Yard, Taffs Well, Cardiff, £38,730 (recommended).

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- Soil survey of Eastern Avenue—G.K.N. Reinforcements, Ltd., 113 Cathedral Road, Cardiff (recommended). Estimated cost £12,500.
- Carlisle, Cumb.**—Following for City Council: Flagging and construction of footpaths at St. Ninian's Road—H. McDermott, 103 Scotland Road, Carlisle, £2,692; construction of a service road on Warwick Road—Eden Construction Co., Ltd., English Damside, Carlisle, £2,865 (recommended).
- Chelsea.**—Widening of Brompton Road, between No. 66 and Lancelot Place, for L.C.C.—St. Mary's (Contractors), Ltd., 273 Sussex Way, London, N.19, £9,154 (accepted); Mowlem (Civil Engineering), Ltd., £9,386; Fitzpatrick and Son (Contractors), Ltd., £9,856; Chafen and Newman, Piling, Ltd., £10,941.
- Dagenham, Essex.**—Playground repairs at Eastbrook Secondary and Halbutt Secondary Schools, for B.C.—H. V. Smith and Co., Ltd., 3/10 Melton Street, London, N.W.1, £1,025 and Home Counties Contracting Co., Ltd., 24 Hertford Road, London, N.9, £957 respectively (recommended).
- Deal, Kent.**—Making-up of Kelvedon Road, for B.C.—A. H. Hooker and Son, Ltd., Otham, Maidstone, £2,643 (recommended, subject to Ministry approval).
- Denton, Lancs.**—Construction of an access road to St. Annes Road tip and the making-up of St. Annes Road, for U.D.C.—G. Molloy, 125 Old Hall Lane, Fallowfield, M/C.14, £1,173, and Metallic Roadways, Ltd., Trentmill Road, Hanley, Stoke-on-Trent, £2,166, respectively (recommended).
- Dewsbury, Yorks.**—Final surfacing of the stretch of Wakefield Road now in course of reconstruction for B.C.—Trinidad Lake Asphalt Co. (North Western), Ltd., India Buildings, Water Street, Liverpool, £7,089 (recommended).
- Dudley, Worcs.**—Work on private development area off Bushey Fields Road for B.C.—Mee Mulrey, Ltd., 365 Olton Boulevard East, Olton, Birmingham, 27, £14,084 (recommended, subject to Ministry approval).
- Hastings, Sussex.**—Bulk excavation works in connection with the improvement of Harold Road at Rusholme, for B.C.—F. G. Griffin, St. Leonards-on-Sea, £1,946 (recommended).
- Hendon, Middx.**—Following for B.C. Making-up of Cedars Close—Charles Carter (Childs Hill), Ltd., 119 Granville Road, London, N.W.2, £6,976; surfacing of carriageways and construction of access roads and soil sewers at Hendon cemetery and crematorium—D. R. Paterson, Ltd., 33 Granville Road, London, N.W.2, £9,227; redecorations at the Central Library, Golders Green and Mill Hill branch libraries and Church Farm House museum—G. Jones and Sons, Ltd., 27b Kensington Church Street, London, W.8, £1,056 (recommended).
- Holborn.**—Construction of a new street, widening of existing streets and the construction of a pedestrian subway and underground public conveniences at Holborn-Kingsway intersection, for L.C.C.—Fitzpatrick and Son (Contractors), Ltd., 455 Old Ford Road, London, E.3, £119,821 (accepted); Mowlem (Civil Engineering), Ltd., £122,819; Alderton Construction Co., Ltd., £125,032; T. H. Contractors, Ltd., £138,118.
- Isle of Grain, Kent.**—Repairs to roads at The Kent Oil Refinery for Ivor C. Roberts—Hodsons, Ltd., 17 Wrotham Road, Gravesend.
- Kidderminster, Worcs.**—Reinstatement of trenches in road and footpaths within the Borough for B.C.—C. J. Pearce and Co., Ltd. (recommended). Estimated cost £4,000.
- Leeds.**—Following for City Council: Private street works—Harrowby Crescent and Harrowby Road (part)—Benstead Industries, Ltd., Isle Lane, Leeds, 11, £2,759; Wycliffe Drive—Dalton and Higgins, Canal Wharf, Leeds, 11, £840 (recommended, in lieu of previous tender).
Road works on the Swardcliffe estate area 4—Fallon (Civil Engineers and Plant Hire), Ltd., Elland Road, Leeds, 11, £5,108.
Private street works—Hill End Close and Hill End Crescent—Jas. E. Speight, 29 Primrose Lane, Halton, Leeds, 15, £2,138; Walker's Lane (part)—Dalton and Higgins, £1,302.
Improvement works—Iveson House light industrial area—James W. Tait, Ltd., Moor-side Road, Bradford, 2, £11,913 (all recommended).
- Leeds.**—Soil survey along the line of the proposed inner ring road (stage 1), between Westgate and Camp Road intersection, for City Council. D. Currie, city engineer—Elmat, Ltd., 26/34 Emerald Street, London, W.C.1, £1,979. Work commencing Nov.
- Leyton, Essex.**—Provision of a layby at High Road for B.C.—Appleton and Sons, Leigh-on-Sea, £3,766 (recommended).
- Malvern, Worcs.**—Construction of approximately 450 lin. yd. of 22ft. wide carriageway at Leigh Sinton Road, between the junctions of Yates Hay Road and Tanhouse Lane, for U.D.C. The works include site clearance, excavation, filling, surface water and foul drainage, road foundations in hardcore, tarmacadam and bitumen macadam, kerbing and channelling, footpaths, verges, and some fencing. C. C. Judson, surveyor and water engineer—M. Walsh and Son, Ltd., Hornoyd Road, Malvern. Work commencing November.
- Manchester.**—Following for City Council: Construction of footpaths and verges on the proposed low density housing development, Brooklands, and site works for provision of 206 prefabricated garages at Wythenshawe—Direct Labour; private street works in Hermitage Road and Linn Street, Crumpsall and Park Range, Victoria Park—Bituminous Surfacing, Ltd., Manchester.
Site investigation survey for multi-storey development at Heywood, Sale and Fairbourne Road, Levenshulme, to be extended to include sites of three additional multi-storey blocks at Heywood—Matthews and Mumby, Ltd., Denton.
Construction of roads and sewers for second stage of the Gorton Cemetery extension—W. Snape and Sons, Ltd., Clifton House, Clifton Road, Eccles (all recommended).
- Midhurst, Sussex.**—Making-up of roads, footpaths and ancillary works at the Harrows housing estate, Tillington, for R.D.C. K. C. Parker, engineer—Kaymat, Ltd., North Heath, Horsham, £3,845.
- Morley, Yorks.**—Street works, Nepshaw Lane estate, for B.C.—Leake and Carney, Ltd., Wakefield, £6,415 (recommended, subject to Ministry approval).
- Newport, Mon.**—Advance preparation works, stage 3, at Bettws neighbourhood unit, for B.C.—J. F. Dymond, 30 High Street, Newport, £92,351 (recommended, subject to Ministry approval).
- Penarth, Glam.**—Making-up of Dowland Road (part), Handel Close (part), and Cornerswell Place (part), for U.D.C.—Maberly Parker, Ltd., Ynys Yard, Taffs Well, Cardiff.
- Plymouth, Devon.**—Extension of Mayflower Street, for City Council—Direct Labour

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Redcar, Yorks.—Construction of approximately 13,000 sq. yd. of flexible carriageway in lean-mix concrete and tarmacadam surfacing and the construction of approximately 3,500 lin. yd. of sewers from 48in. diameter to 6in. diameter. Lakes neighbourhood areas 7 and 8, for B.C.—B.A.C.E. (Redcar), Ltd., 50 Broadway East, Redcar, £55,000 (subject to Ministry approval). Work commencing spring 1962.

Romford, Essex.—Construction of garage sites at Queen Street and Belle Vue Road for B.C.—G. O'Neill and Son, Ltd., 33 Bartlow Gardens, Chase Cross, Romford, £5,762 (recommended).

Rugby, War.—(a) heating and planing of approximately 27,000 square yards of approximately 37,000 square yards of carriageways and footways, the surfacing carriageways with dense bituminous macadam and approximately 16,000 square yards of footways with hot rolled asphalt and (b) construction and surfacing of approximately 3,000 square yards of footways on the Abbots Farm Estate (east of Featherbed Lane) and also the laying-out of grass verges for B.C.—Limmer and Trinidad Lake Asphalt Co., Ltd., Trinidad House, Coventry Street, Birmingham, 5, (a) £18,527 and (b) £4,218 (recommended).

St. Albans, Herts.—Private street works at Hawfield Gardens for City Council—Sullivan Construction Co., Ltd., 15 East Barnet Road, New Barnet, £9,429.

Salford, Lancs.—Making-up of Granville Road for City Council—James M. Cuss, Rochdale, £3,298 (recommended).

Staffordshire.—Construction of a trunk road between Hanford Bridge on the A.34 and Hanchurch on the A.1, for C.C. F. Jepson, county surveyor—Percy Bilton, Ltd., Newcastle Road, Stone, Staffs, £377,093.

Stoke Newington.—Reconstruction work at Woodberry Grove, from New River Bridge to Seven Sisters Road, for B.C.—Fitzpatrick and Son (Contractors), Ltd., 455 Old Ford Road, London, E.3, £16,088 (recommended).

Surbiton, Surrey.—Resurfacing of Kingston Road (part), for B.C.—Waywarden, Ltd., 215 Forest Road, London, E.17, £1,125.

Wanstead and Woodford, Essex.—Construction of access road, hardstanding and ancillary works for 17 garages at Old Mill Court for B.C.—J. Bray, 36 River Park Gardens, Ravensbourne Avenue, Bromley, Kent, £1,587 (recommended).

Watford, Herts.—Construction of roads and sewers on housing site at Leveret Close, High Road, Leavesden, for B.C.—Sullivan Construction Co., Ltd., 15 East Barnet Road, New Barnet, £10,899 (recommended, subject to Ministry approval).

Wilton.—Reinstatement of kerbs, construction of paths and formation of verges at Bulbridge estate (phase 2), for B.C.—T. Holdaway and Sons, Ltd., Upper Eden Vale, Westbury, £3,326 (recommended, negotiated tender).

Workington, Cumb.—Erection of footbridge at High Harrington, for B.C.—Border Engineering Contractors, Ltd., 134 Queen Street, Whitehaven, £1,315 (recommended).

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Barry, Glam.—Construction of the remainder of the Eastern Drainage scheme, for B.C.—E. Light and Sons, Ltd., 15A Clive Road, Cardiff, £286,100 (recommended, subject to Ministry approval).

Basingstoke, Hants.—Provision of surface water drainage at Houndmills industrial estate (phase II) and surface water sewer in Chapel Street for B.C.—Foster Bros. (Hook), Ltd., Hook Common, Hook, £18,433 and £753, respectively (recommended).

Dewsbury, Yorks.—Installation of mechanical de-sludging equipment for 11 primary sedimentation tanks at the Mitchell Laithes sewage disposal works for B.C.—Robert Hudson, Ltd., Meadow Lane, Leeds, 11, £4,010 (recommended).

Forehoe and Henstead, Norfolk.—Costessey sewerage and sewage disposal, section IV, for R.D.C., comprising the construction of 17,400yd. of 9in. and 6in. diameter sewers, manholes, one off-site pumping station, and 1,350yd. of 10in. diameter spun-iron rising main, and extensions to an existing sewage disposal works comprising detritus tanks, settlement tanks, filter beds, humus tanks, sludge drying beds, sludge digestion tanks, site pumping station, and other appurtenant works Elliott and Brown, consulting engineers, Stanley House, Pelham Road, Nottingham—Harry Pointer (Norwich), Ltd., Guardian Road, Norwich, £190,476 (accepted); F. R. Hipperson and Son, Ltd., £268,072; A. R. King, £203,370; F. W. Shanks, Ltd., £263,662; E. Thompson, Ltd., £208,382; Bush Builders (Norwich), Ltd., £217,000.

Hastings, Sussex.—Following for B.C.: Extension of the outfalls at Harold Place and Caroline Place—Millsbound, Ltd., £9,337; supply of special extra strength pipes and the construction of the culvert on Pebsham tip—Sharp Jones and Co., Ltd., Parkstone, Dorset, £6,926, and George S. Dicker (Engineers), Ltd., 137 Hughenden Road, Hastings, £12,413 respectively (recommended, subject to Ministry approval).

Reconstruction of a 9in. diameter storm water sewer in Priory Road fronting the new Halton redevelopment site—Ringmer Building Works, Ltd., Ringmer, Lewes (recommended), estimated cost £1,293.

Kidderminster, Worcs.—Surface water sewers in Stourport Road for B.C.—L. W. W. Slater, Birkkragg, St. Johns Avenue, Kidderminster, £3,636 (recommended).

Kirkcaldy, Fife.—Construction of sewers, manholes and ancillary drainage works at Dunnikier Park housing estate for B.C. R. Meldrum, burgh engineer—Thomas Menzies (Builders), Ltd., Townsend Place, Kirkcaldy, £3,766. Work to commence at once.

Leeds.—Following for City Council: Sewering works on the Bell Isle estate, area E—Otty Bros., Ltd., Brancepeth Place, Armley Road, Leeds, 12.

Reconstruction of the beck wall at Firnley Street—Manston Construction (Leeds), Ltd., Manston Lane, Leeds, 15, £3,310 (recommended).

Leyton, Essex.—Reconstruction of pumping station and main outfall sewer at Auckland Road Depot for B.C.—James Miller and Partners (Hayes), Ltd., Station Works, Pump Lane, Hayes, Middx., £91,782 (recommended, subject to Ministry approval).

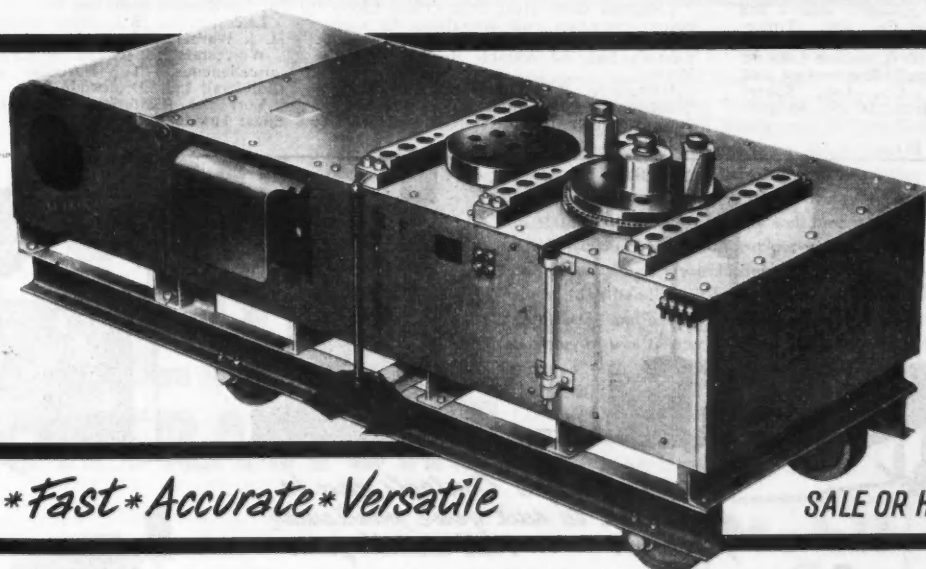
Malvern, Worcs.—Following for U.D.C.: (1) Shuttlefast sewerage scheme, the works comprise the construction of approximately 5,780 lin. yd. of 18in. to 6in. sewers in concrete tube, asbestos-cement tube and iron pipe, together with precast concrete section and brick manholes, and ancillary works; (2) foul sewer, Worcester Road, the works comprise the construction of approximately 360 lin. yd. of 6in. diameter sewer in concrete tube, together with precast concrete section manholes, and ancillary works. C. C. Judson, surveyor and water engineer—Worcester Plant Hire and Contractors, Ltd., 6 Bank Street, Worcester. Work commencing November.

Manchester.—Culverting of a length of stream adjoining the former R.A.F. rifle range at

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Manchester Airport for City Council—J. Uttley, Ltd., Manchester (recommended).

Romford, Essex.—Construction of surface water drains at Havering Road Depot for B.C.—G. O'Neill and Son, Ltd., 33 Bartlow Gardens, Chase Cross, Romford, £5,464 (recommended, in lieu of previous tender).

St. Ives, Hunts.—Main drainage works in the parishes of Houghton and Wyton, Hemingford Abbots and Hemingford Grey, for R.D.C. Howard Humphreys and Sons, consulting engineers, West Street, Epsom—Kottler and Heron, Ltd., Cliftonville, Northampton, £402,103 (in lieu of previous tender). Work commencing shortly.

Scarborough, Yorks.—Reconstruction of southern outfall sewer (stage III) for B.C. V. Forshaw, borough engineer—Tarmac Civil Engineering, Ltd., Bowesfield Lane, Stockton-on-Tees, and Ettingshall, Wolverhampton.

Stratford-upon-Avon, War.—Reconstruction and extension of the sewage works, contract 3, for B.C.—M. J. Gleeson (Contractors), Ltd., London Road, North Charnham, Surrey £361,483 (recommended, subject to Ministry approval).

STREET LIGHTING

Carshalton, Surrey.—Supply and erection of street lighting columns and equipment, stage v (balance), for U.D.C., involving 556 concrete lighting columns (15ft. mounting height), with equipment—26 for high standard group B sodium lighting, 530 for tungsten lighting. F. J. Kennedy, engineer and surveyor—Concrete Utilities, Ltd., Great Amwell, Ware, Herts., £10,341.

Dudley, Worcs.—Street lighting programme, contract IV, for B.C.—Revo, Ltd., Dudley Port, £27,242 (recommended, subject to M.T. approval).
Service connections and conversion of existing lamps—Midlands Electricity Board (recommended). Estimated cost £13,982 and £776, respectively.

Enniskillen, Fermanagh.—Street lighting of villages 159 fluorescent lighting points for R.D.C. A. Stephenson, engineer and surveyor—A.E.I. Lamp and Lighting Co., Ltd., 18 Adelaide Street, Belfast, 2, £4,050 (accepted); The General Electric Co., Ltd., £4367; Revo Electric Co., Ltd., £4,092; W. R. Nawn, £4,122.

Hastings, Sussex.—Supply of following street lighting equipment for maintenance purposes, lighting of new residential estates and stage II of the Bourne Road scheme, for B.C.: lanterns, chokes and capacitors—A.E.I. Lamp and Lighting Co., Ltd., 132 Long Acre, London, W.C.2, £696; lamp columns and brackets—Stewarts and Lloyds, Ltd., Old Broad Street, London, E.C.2, £614; time switches—Venner, Ltd., Kingston By-pass, New Malden, Surrey, £484; lanterns, refractors and reflectors—Holophane, Ltd., Elverton Street, London, S.W.1, £1,277; lamp columns, spigots and finials—Revo Electric Co., Ltd., Tipton, Staffs, £3,693 (recommended).

Leeds.—Supply of 250 60-W sodium lanterns (S.E.) for City Council—Engineering and Lighting Equipment Co., Ltd., Sphere Works, St. Albans, Herts., £6 19s. 3d. each (recommended).

Leicester.—Drive lighting at Glengate Hospital, Desford, for Sheffield Regional Hospital Board—Perkins and Spencer, Ltd., 57 East Bond Street, Leicester, £604.

Malvern, Worcs.—Erection of 298 concrete columns and lanterns, and provision of wiring and lamps in the residential area of Great Malvern, for U.D.C. C. C. Judson surveyor and water engineer—Bagshaws Contractors, Ltd., 83 Jackroyd Lane, Newsome, Huddersfield. Work commencing November.

Morley, Yorks.—Lighting of 56 positions on A.62 Gelderd Road, Gildersome, for B.C.—Engineering and Lighting Equipment Co., Ltd., Sphere Works, St. Albans, Herts. (recommended).

Repton, Derbys.—Supply and erection of 41 steel and concrete columns at Willington for R.D.C.—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

Rothwell, Yorks.—Provision and erection of 73 140-W totally enclosed sodium electric discharge street lighting units, with reinforced or prestressed concrete columns, on the Leeds-Exeter trunk road, A.61, for U.D.C.—Concrete Utilities, Ltd., 11 Albert Square, Manchester, 2, £2,853. Work commenced.

GOVERNMENT CONTRACTS

Air Ministry.—Contracts to the value of £4,000 or over for the week ended Oct. 6:
Building work: Wittering, Northants, and Binbrook, Lincs.—A. Monk and Co., Ltd., P.O. Box 4, Stamford, Lincs.; Weybourne, Norfolk—Walter Lawrence and Son, Ltd., Ventnor House, London Street, Swaffham, Norfolk; Chicksands, Bedford—A. Roberts and Co., Ltd., 79 Eccleston Square, London, S.W.1.
Artificers' work: Heston Airport—W. S. Try, Ltd., Uxbridge, Middx.
Painting work: Acklington—Seddon (Stoke), Ltd., 55 Duke Street, Fenton, Stoke-on-Trent.

Ministry of Works.—Contracts placed for week ended Sept. 30:
Buckinghamshire: Post Office, Regional Telephone Centre, Bletchley Park, Bletchley—new temporary classrooms building—Terrapin, Ltd., Haddon House, Fitzroy Street, London, W.1.
Cornwall: Bude—erection of telephone exchange—Hobbs and Knight, Ltd., 33a Westgate Street, Launceston.
Essex: H.M. Stationery Office, Basildon—erection of new building—Richard Costain (Construction), Ltd., 111 Westminster Bridge Road, London, S.E.1.
Glamorgan: Metropole Hotel, Wind Street, Swansea—alterations and decorations to offices—Rees and Kirby, Ltd., P.O. Box 8, Morriston, Swansea.
Gloucestershire: Head Post Office, Cirencester—extension and alterations to sorting office—John Pattison (Building Contractor), Ltd., 52 Bramble Road, Swindon, Wilts.
Hampshire: Post Office, Brockley Road, Brockenhurst—alterations to public office and extensions to sorting office—Truckell

and Baxter, Ltd., 27 Salisbury Road, Totton, Southampton.

Kent: Armament Research Development Establishment, Fort Halstead—initiator laboratory site works—Walter Smith (Contractor), Ltd., Bullfinch Lane, Riverhead.

London: St. Stephen's Club Building, S.W.1—occupational services to office building—Charles R. Price, 252 Bishopsgate, E.C.2; Queen Anne's Chambers, Broadway, S.W.1—renewal of roofs to office building—F. G. Minter, Ltd., 4 Buckingham Gate, S.W.1; Public Trustee Office, Sardinia Street, W.C.2—dismantling of existing lift and supply of one electric lift—J. and E. Hall, Ltd., Dartford Ironworks, Dartford, Kent; Russell Square House, Woburn Place, W.C.1—external and internal decorations to office building—South London Decorators, Ltd., Wandale Way, Willow Lane, Mitcham, Surrey.

Northumberland: Ministry of Pensions and National Insurance, Benton, Newcastle—sound proofing to machine rooms—Darlington Insulations Co., Ltd., Tynos Works, Scotswood, Newcastle upon Tyne.

Staffordshire: Ministry of Works Store, Ormande Street, Fenton, Stoke-on-Trent—renovations to roof—Elsby Bros., Ltd., Sneyd Hill, Burslem, Stoke-on-Trent.

Warwickshire: Head Post Office, East and West Buildings, Birmingham—internal painting—Harris and Sheldon, Ltd., 45 College Road, Perry Barr, Birmingham, 22.

Yorkshire: Eston Grange, near Middlesbrough—erection of telephone exchange—T.G. Construction Co., Ltd., Bowerfield Lane, Stockton-on-Tees.

Post Office.—Contracts for duct-laying, etc., works to the value of £4,000 and over placed during the week ended Oct. 7:
J. E. Billings and Co., Ltd., 54 Beddington Lane, Croydon, Surrey; W. A. Gale, Ltd., 48 Ruthven Road, Litherland, Liverpool, 21; George H. Graham (Contractors), Ltd., District Bank Chambers, Market Street, Huddersfield, Yorks.; The Norwest Construction Co., Ltd., Litherland, Liverpool, 21; Alexander Thomson and Co. (London), Ltd., 45a Kensington High Street, London, W.8.

War Department.—Contracts placed for the week ended Oct. 6:
Anglesey (Ty Croes): building—Watkin Jones and Sons, Ltd., Bangor.
Breconshire (Sennybridge): roadwork—O. J. Elliott and Co., Ltd., Bristol.
Dorset (Lulworth Camp): building—Campbell and McGill, Ltd., Winchester.
Essex (Colchester): miscellaneous—Rogers Bros., Ltd., Felixstowe.
Hampshire (Tidworth): building—Thos. King and Sons (Builders), Ltd., Andover; painting and decorating—Fields (Reading), Ltd., Reading.
Kent (Medway area): miscellaneous—W. H. Holden, Rainham.
Leicestershire (Brantton): miscellaneous—H. J. Warner, Ltd., Derby.
Worcestershire (North Worcester area): miscellaneous—G. Harrison and Son (Builders), Ltd., Droitwich.
Yorkshire (Catterick Camp): building—Edgar Lawson, Ltd., Darlington.



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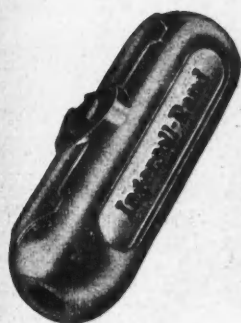


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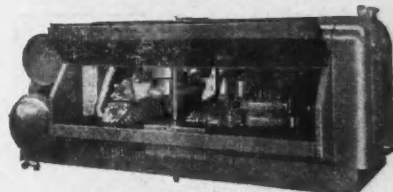
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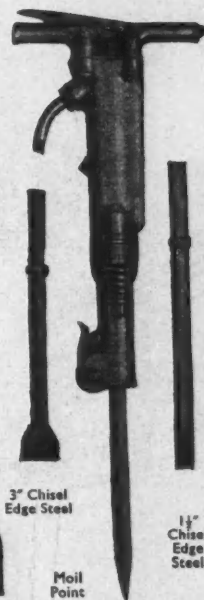
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Three Euclid T254 MOTOR SCRAPERS, new 1959 and in first-class order.

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Three 6-ton Bedford LORRIES with Teletrete bodies.

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1948 Priestman Cub, A4514, Dorman, 18in. tracks, Skimmer Backacter, F/S, £575.
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1936 10-ton Aveling STEAM ROLLER, in working order.

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Lima 2400 EXCAVATORS, with Dragline and Forward

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All machines in excellent condition, may be seen

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Millars CONCRETE MIXERS, all models. 3 1/4-ton Mobile CRANE, "Weserwolf" four-wheel drive, 30ft. under the hook, £3,675.

Pegson PUMPS and RAMPERS.

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304 N.C.K., A.E.C. Diesel, fitted 60ft. and 10ft. jib extra ballast. First-class machine, £3,750.

19RB, 4885, Ruston N.Q.N.B., fitted Dragline, 1985A Priestman Wolf 111B, 1956, Dorman Diesel, fitted Dragline, £1,200.

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10RB, 18000 Series, Skimmer/Backacter, £1,000.

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Sole Concessionaries for Weserwolf, Weserwolf, Mobile Crane/Excavator.

Agents for Millars Machinery, Pegson Rammers and Pumps, Warry Hoists and Ace Machinery. Details from:

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INTERNATIONAL HARVESTER 5-ton 841-1 MOBILE CRANES, ex stock.—HAWLEY PLANT, LTD., Dartford. Telephone 21166.

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will SELL by AUCTION on

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approximately 420 lots comprising:—

**CIVIL ENGINEERING PLANT
AND EQUIPMENT, MOBILE CRANES,
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RUSTON BUCYRUS "19 R.B.", "20 R.B." and "37 R.B.", PRIESTMAN "CUB" and SMITH EXCAVATORS, LIMA 1201 EQUIPMENT, MICHIGAN "175A" SHOVEL, INTERNATIONAL "BTD.6" and "BTD.20" DOZERS & DROTTS, CATERPILLAR "D.7 and D.8s", SCRAPERS, VIBRATING AND TANDEM ROLLERS, A.B.G. 24ft. CONCRETE COMPACTOR AND FINISHER, COMPRESSORS, AVELING-AUSTIN GRADER, HOLMAN VOLE AND HALCO STENUICK DRILL RIGS, FORDSON TRACTORS, DUMPERS, MIXERS, PUMPING AND GENERATING SETS,

also

CARS, LAND-ROVERS (including Diesel Canteen Vans), REFUELLERS, TIPPER'S, DUMPCRETES, TRAILERS, ETC.,

and

PATENTED STEEL ROAD FORMS, STEEL WAY BEAMS, RAILS, STANTON SPUN IRON PIPING, TIMBER, SECTIONAL WOODEN BUILDINGS, STEAM CLEANER, SCAFFOLD TUBE CLEANER, PNEUMATIC DRILLS, HAMMERS, PAINT, LABORATORY EQUIPMENT, LEVELS, THEODOLITES, PYE "RANGER" RADIO TELEPHONE, OFFICE FURNITURE AND EQUIPMENT, ETC.

Sale to commence at 10.30 a.m.

ON VIEW: Monday, 30th October to Saturday, 4th November, 1961, and Monday 6th November, 1961, 8 a.m. to 5 p.m. and also on the morning of sale.

CATALOGUES: price 1/- (P.O.'s only) may be obtained from the 23rd October onwards from the Auctioneer's Offices, Byard Lane, Bridlesmith Gate, Nottingham. Telephone: Nottingham 54272 (7 lines).

PLANT AND MACHINERY WANTED—FOR SALE—FOR HIRE

FOR SALE.

One Caterpillar D4, 2T Series, L.P.C. Dozer and Winch, 3875.
 One Hanomag K90, base machine and Winch, 1954, £1,100.
 One Caterpillar HT4 SHOVEL, with Ripper and Blade, £2,250.
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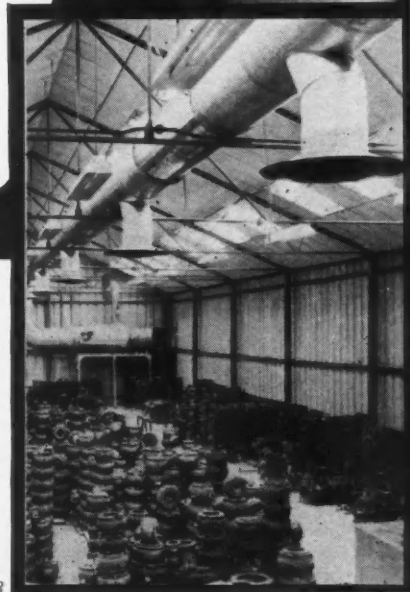
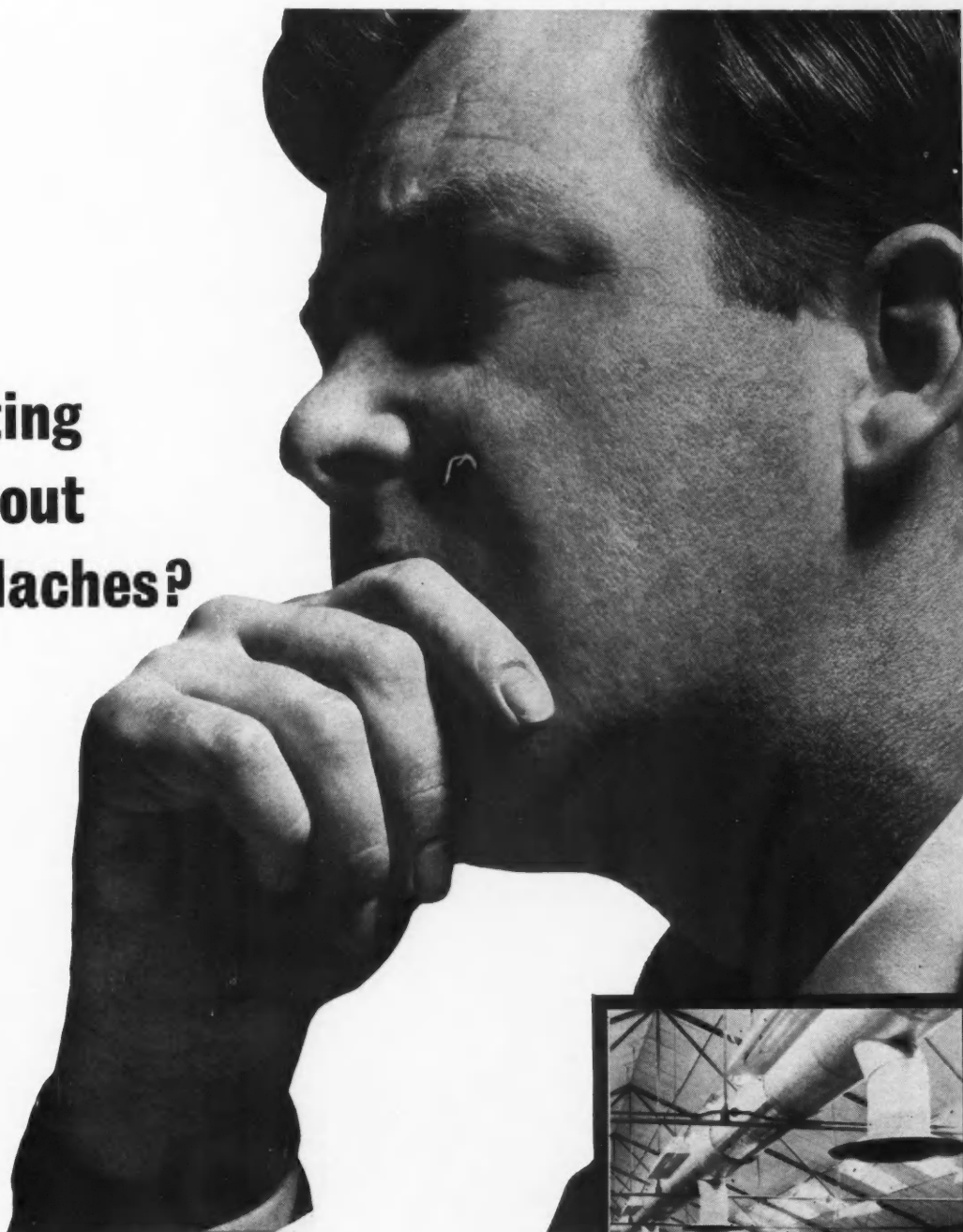
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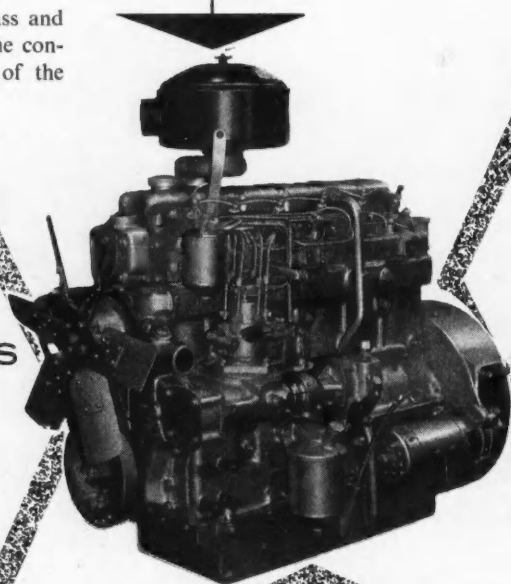


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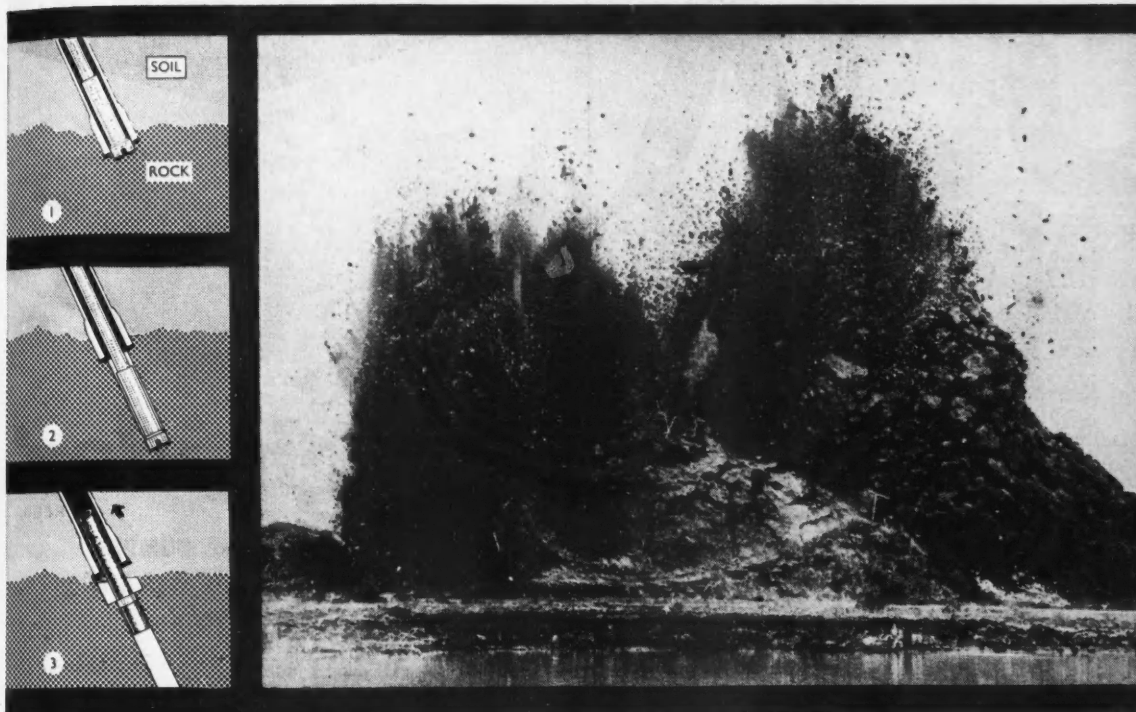


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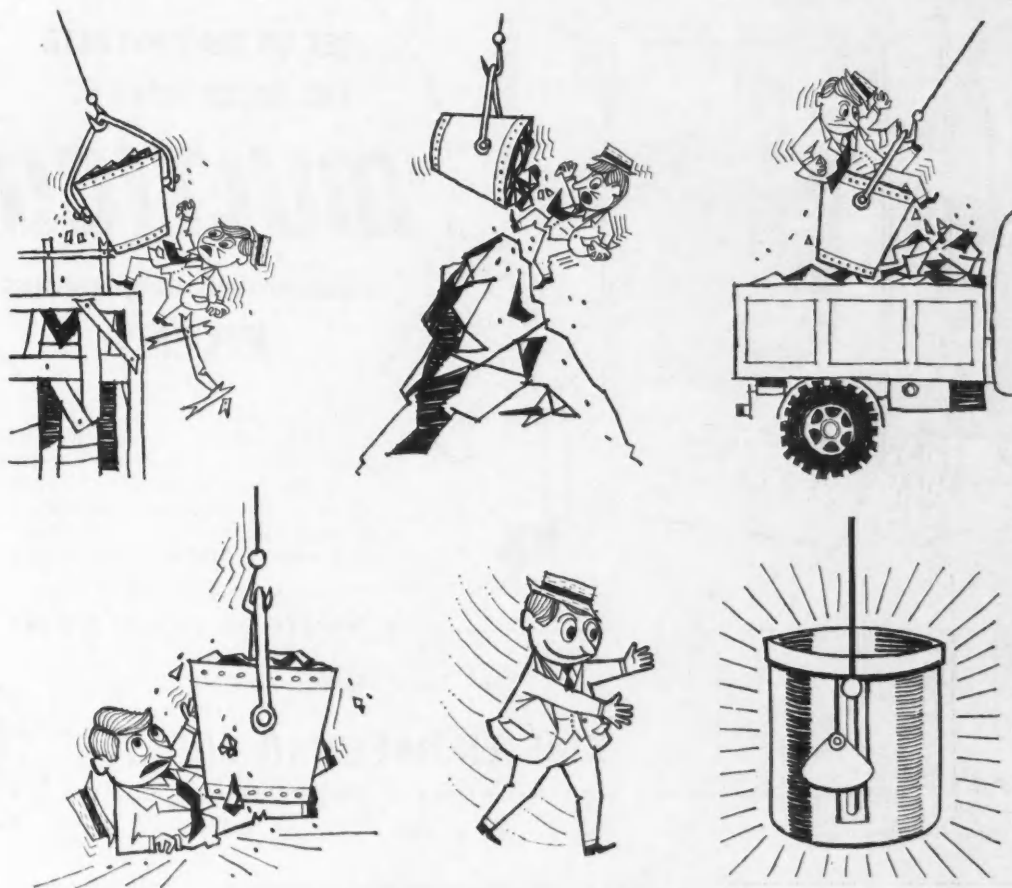
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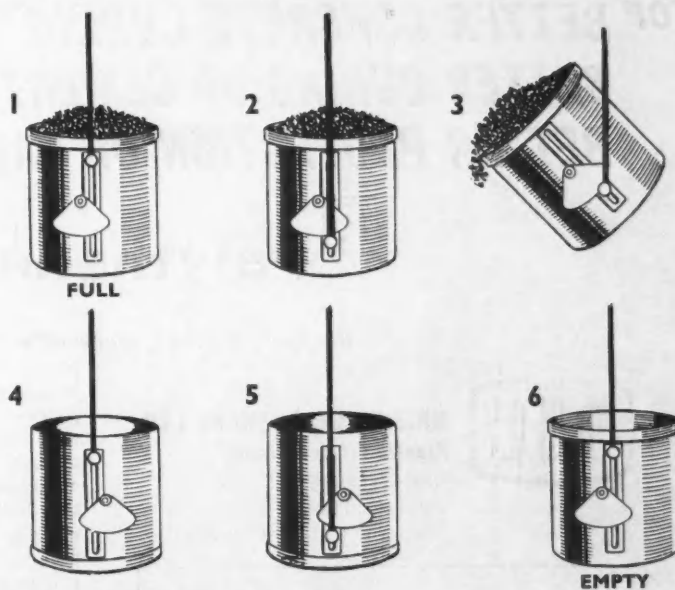
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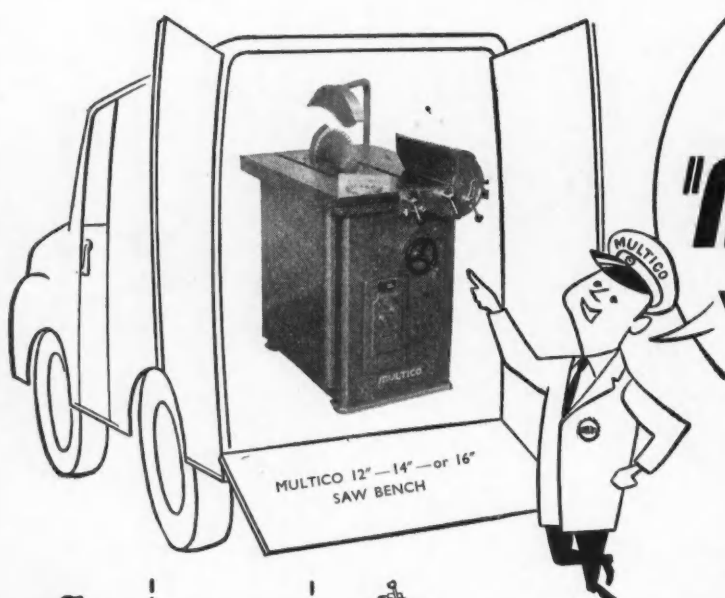


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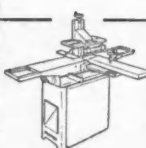
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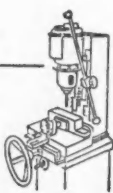
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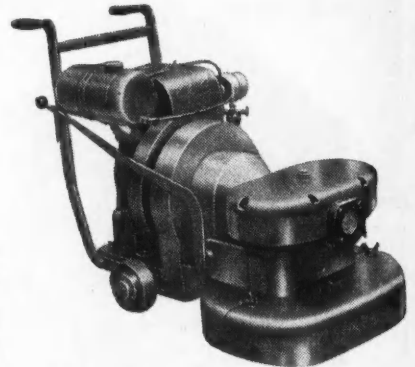


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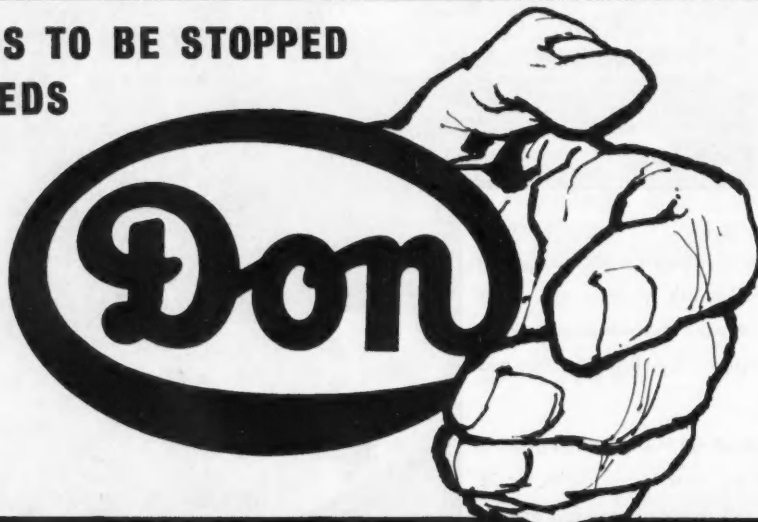
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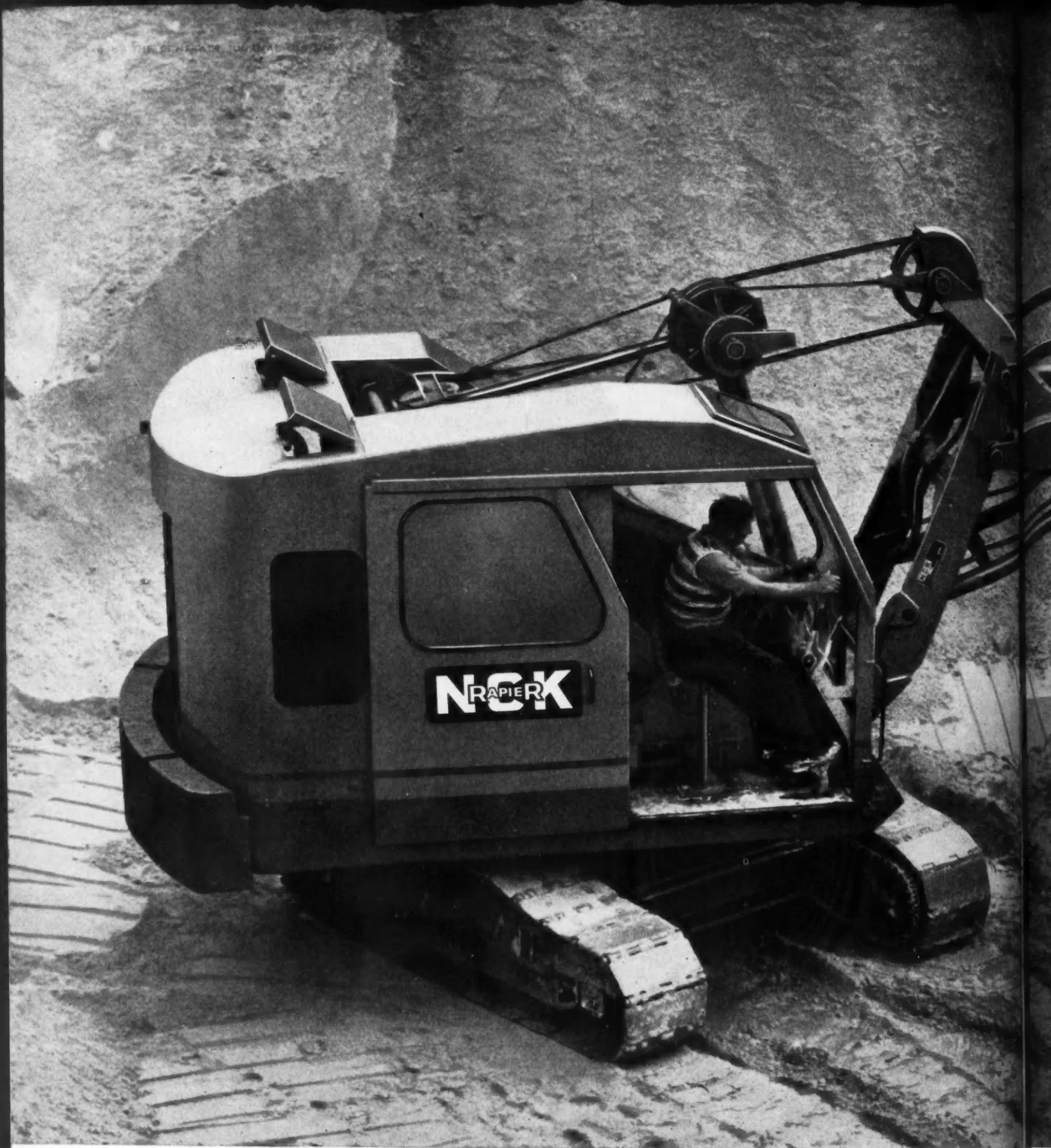
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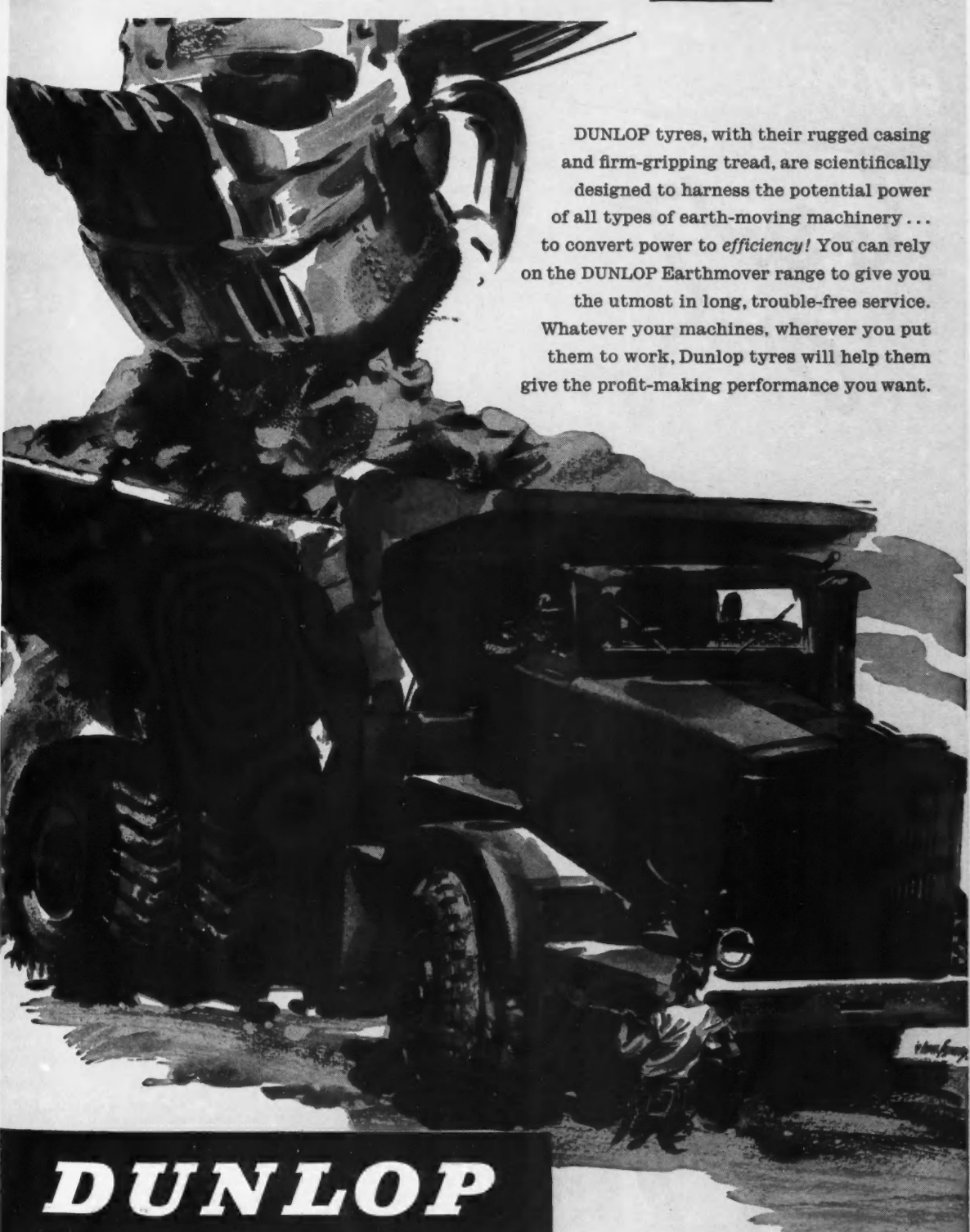


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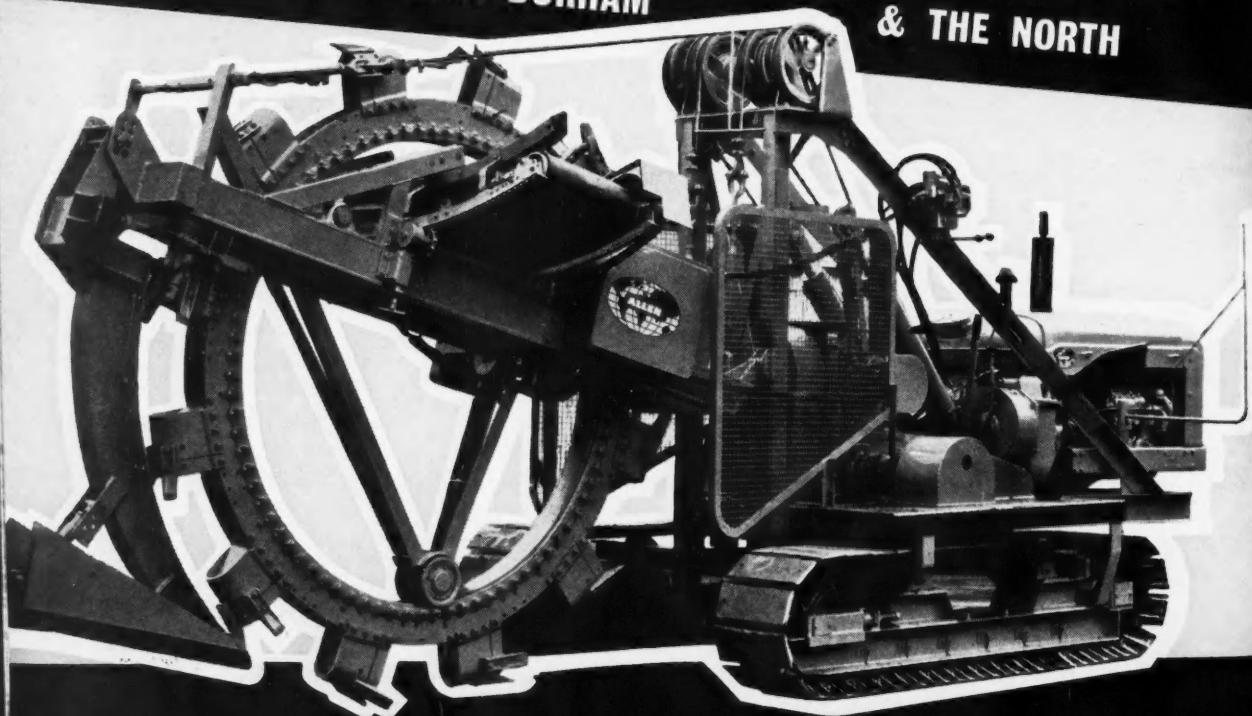
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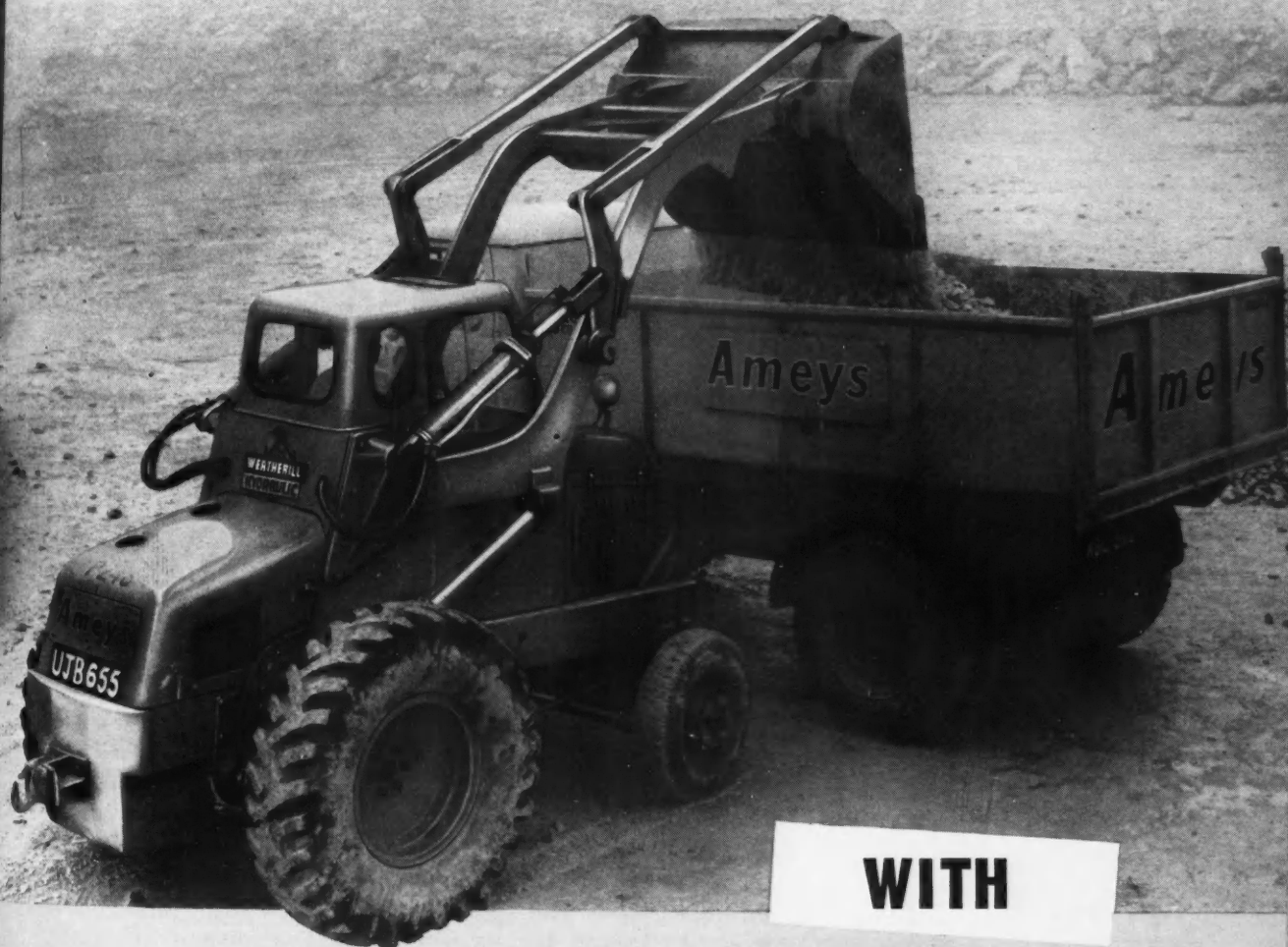
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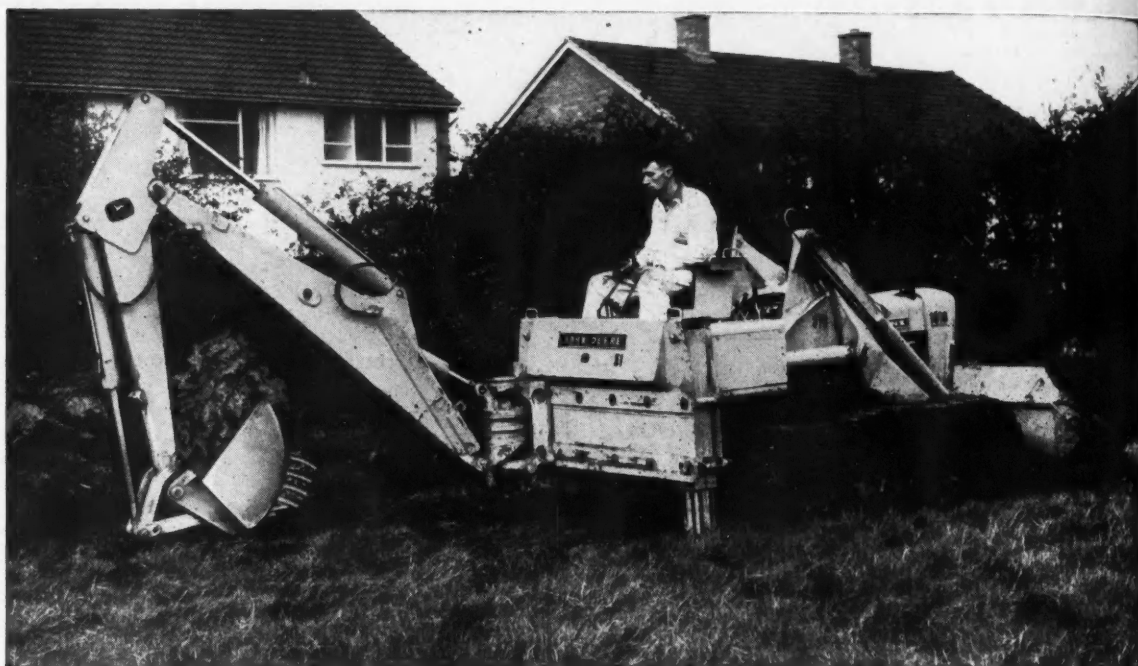
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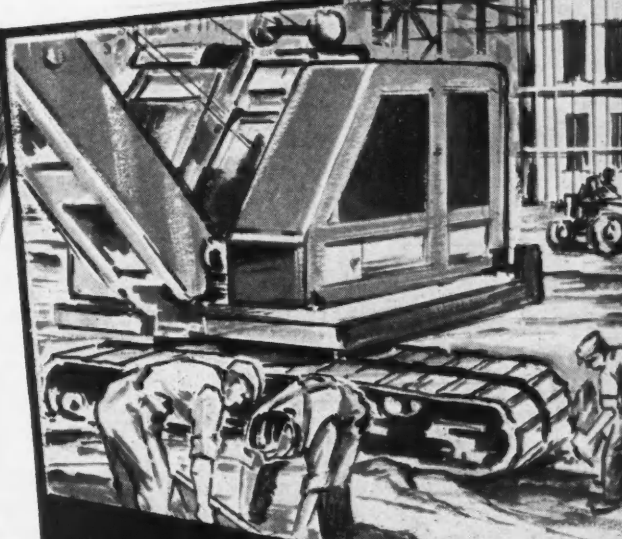


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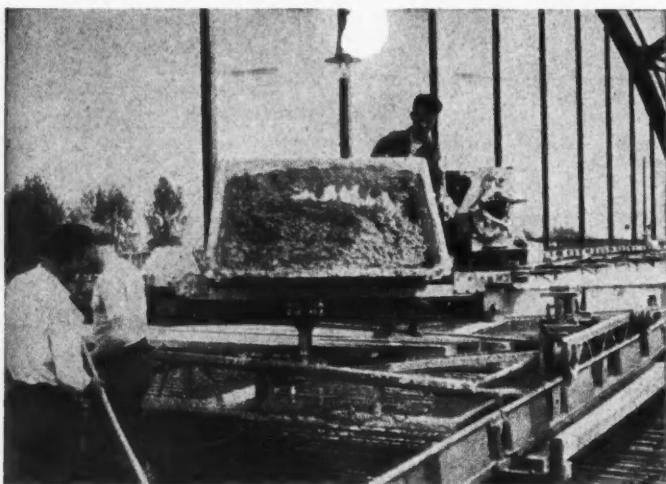
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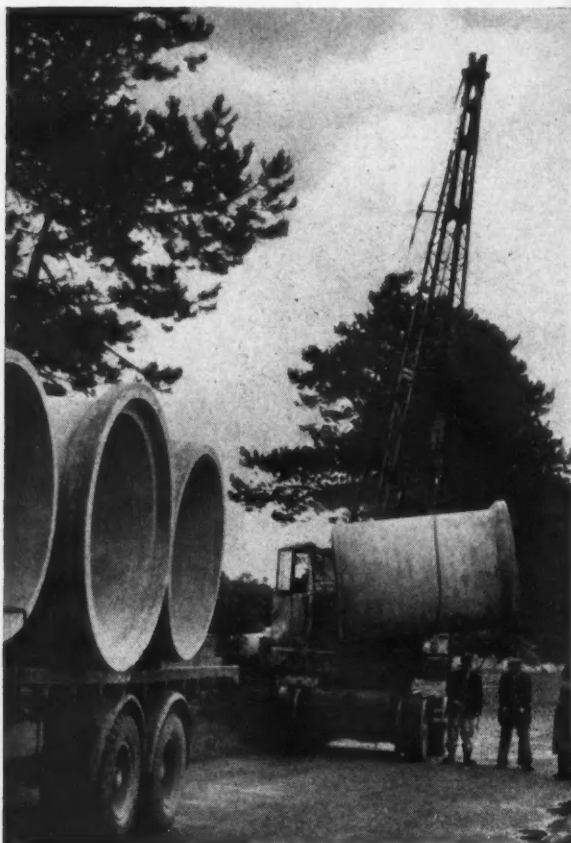
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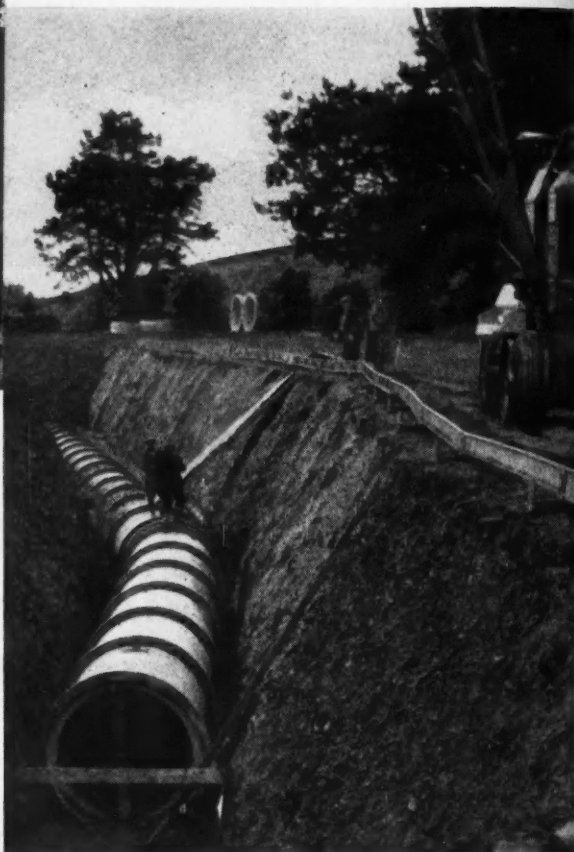
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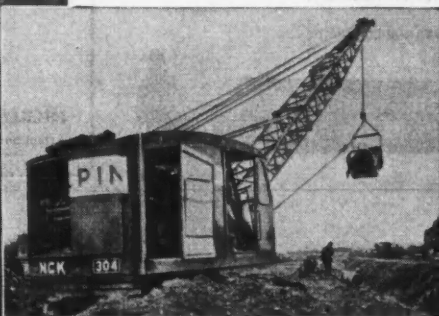
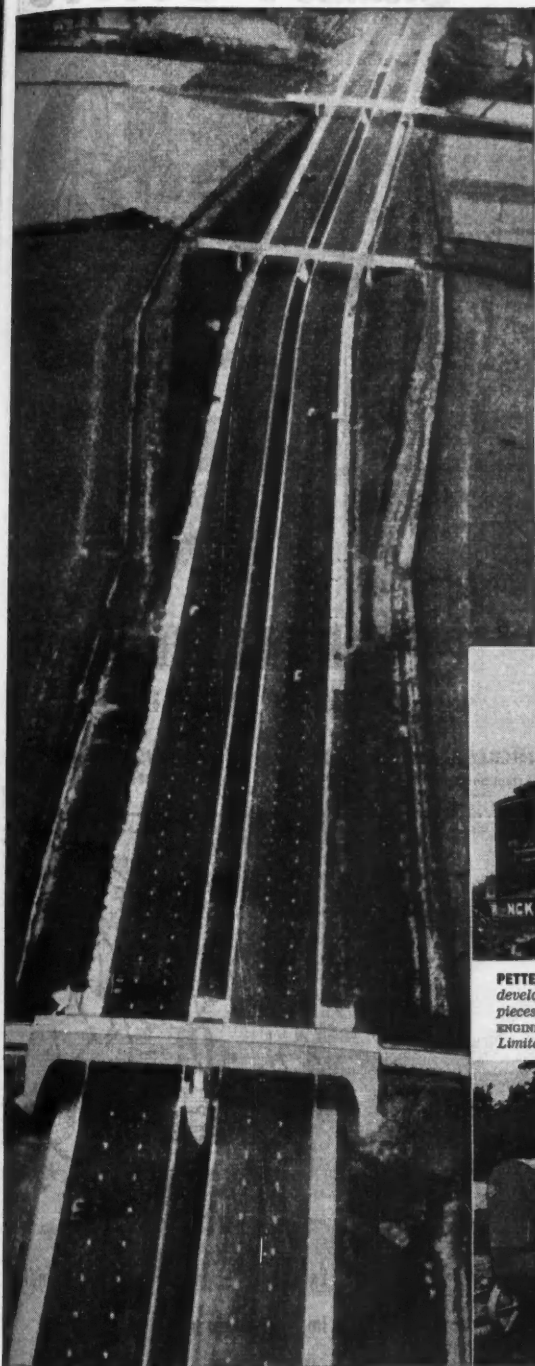
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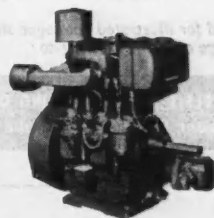
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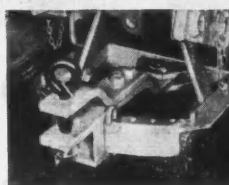
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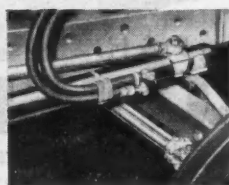
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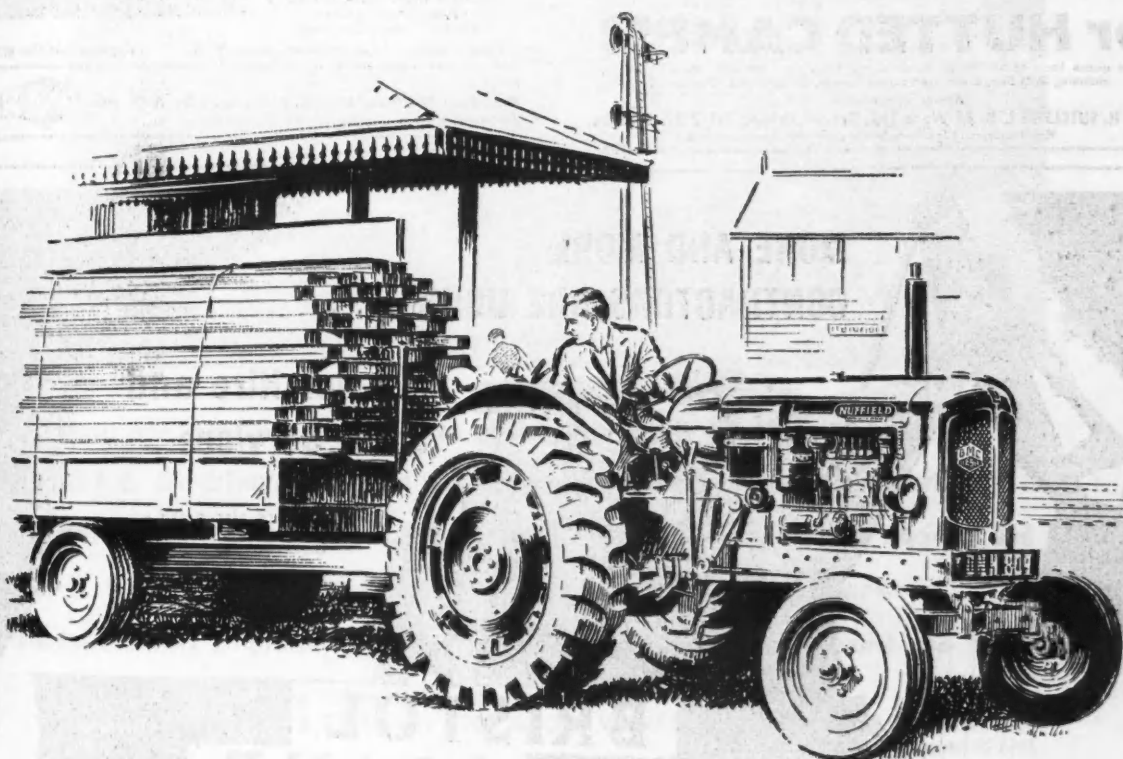
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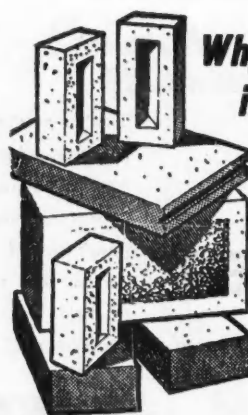
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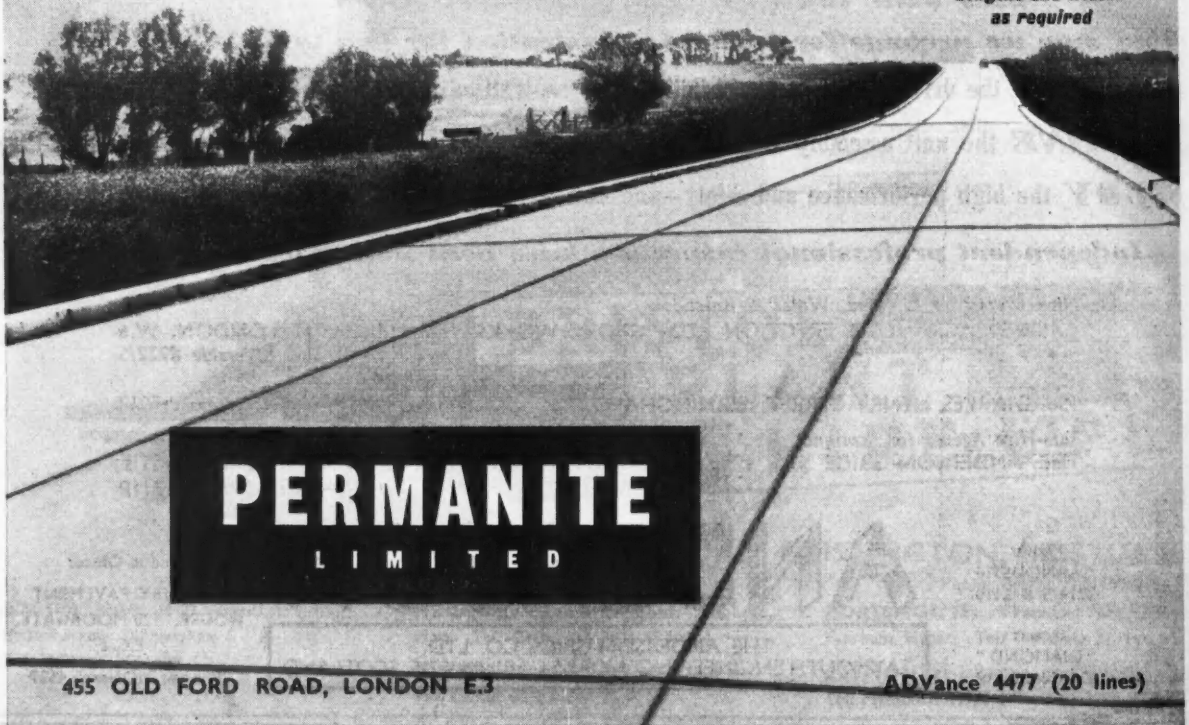
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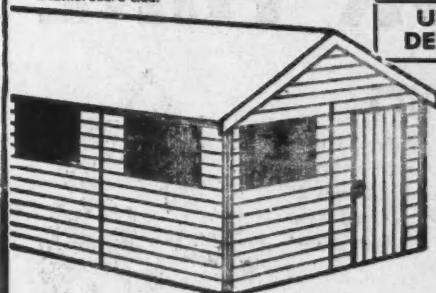
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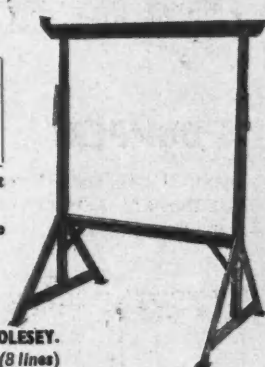
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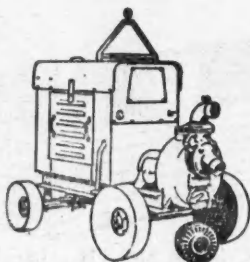
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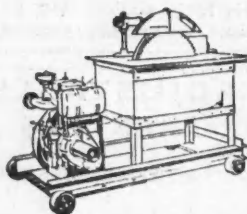
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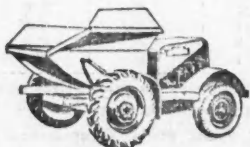
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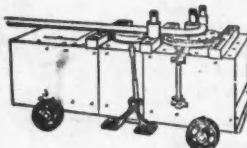
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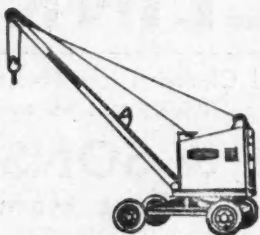
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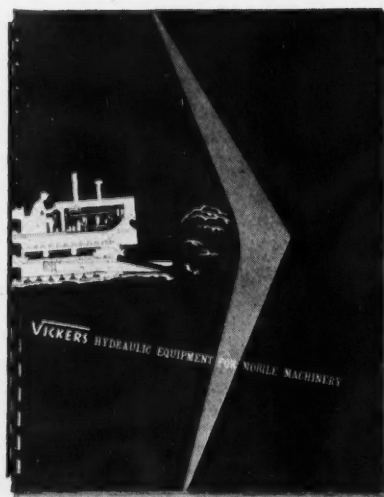
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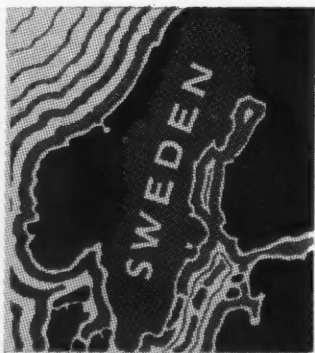
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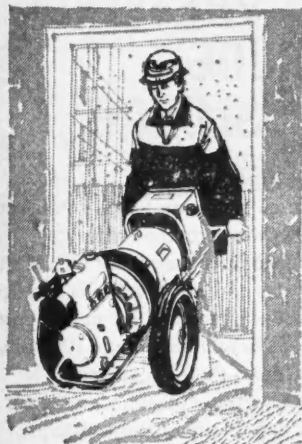
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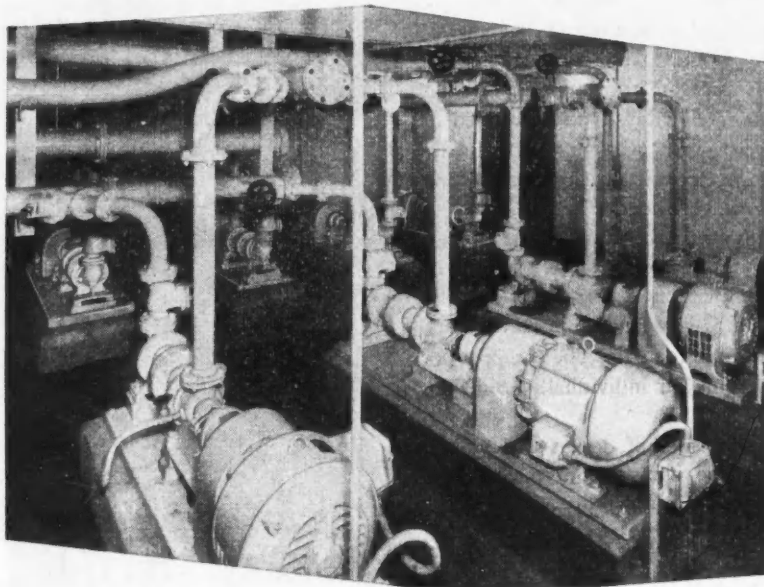


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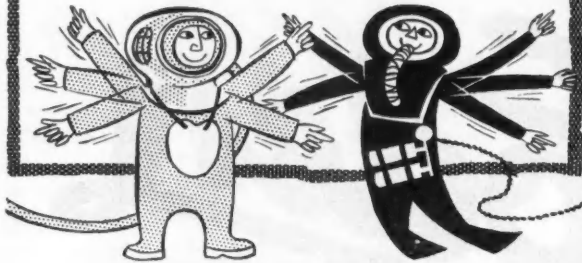
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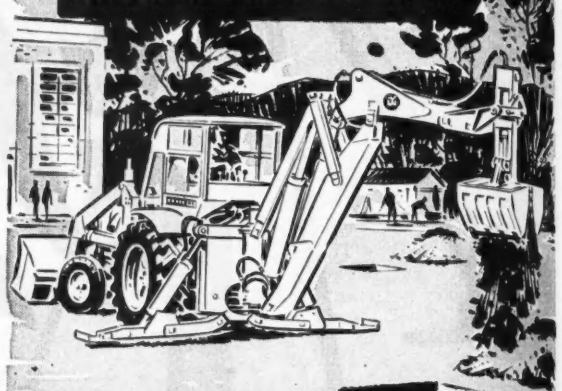
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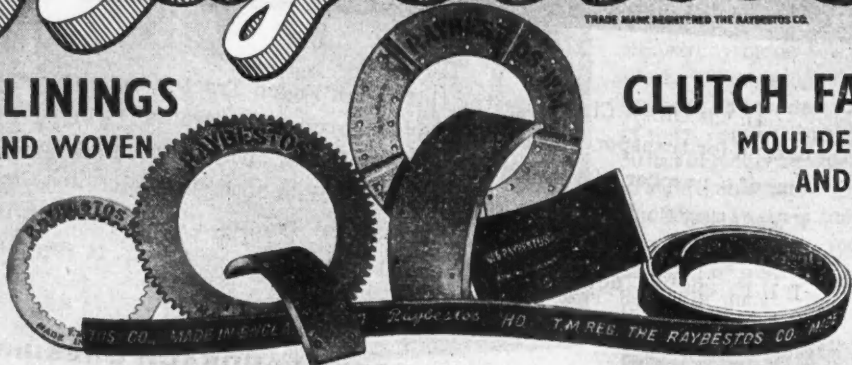
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CONTRACTORS' GUIDE TO AGGREGATES

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MIDLAND AGGREGATES LTD., Eversley, near Basingstoke, Hants. (Tel.: Eversley 2250.) Washed and pit sand and all aggregates.

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DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, London, N.W.3. (Tel.: HAMPSHIRE 8044/8.) For all road aggregates, kerbs, setts. (See London.)

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HALL AND CO., LTD., Railway Yard, Orchard Road, Stevenage (Tel.: 775.) and at Hatfield. Gravel aggregates, concreting, plastering and building sand.

HARTIGAN, G. F. X., LTD. (See Buckinghamshire.)

ST. ALBANS SAND AND GRAVEL CO., LTD., London Colney, St. Albans, Herts. (Tel.: Bowmans green 2271.) Pits at Smallfield Lane, Smallford, and Bramfield Lane, Waterford, Marsh Road, Stanstead Abbots.

ST. IVES SAND AND GRAVEL CO., LTD., 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) And Three Hills Pit, Codicote. (Tel.: Codicote 217.)

TWICKENHAM GRAVEL CO., LTD., Eleanor Cross Road, Waltham Cross. (Tel.: 23388.)

WEBB, G., CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)

WINFIELD, HENRY, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Hemel Hempstead 1209/9.) Pits at Hemel Hempstead, Watford, West Hyde, Rickmansworth. Concrete aggregates, hoggins, building sand.

HUNTINGDONSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

FERRERSAND AGGREGATES, LTD., Northampton Rd. Quarries, Rushden (2354/5). (See Northants.)

GRAVEL PRODUCTS (HUNTS), LTD., Little Paxton, St. Neots, Hunts. (Tel.: Neos 308.) Pits at Little Paxton, St. Neots, Hunts.; and Blunham, Beds.

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

NENE BARGE AND LIGHTER CO., LTD., Market Chambers, Peterborough. (Tel.: 5534/5) and Ship End Quarries, Wansford, near Peterborough (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.

ST. IVES SAND AND GRAVEL CO., LTD., 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) Producers of all grades of washed sand and gravel. Ready mixed concrete. Precast concrete of every description.

WEBB, G., CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)

KENT

BRASTED SAND PITS. Brasted, Kent. (Tel.: 586.) London Office: 10A Elbert Street, S.E.15. (Tel.: New Cross 3337.) Soft and plastering sands, lime and sand-mix dry, hardcore, S.H. bricks, ashes, etc.

BROWN BROS. (SITTINGBOURNE), LTD., Chalkwell Road, Sittingbourne, Kent. (Tel.: Sittingbourne 3350.) Sand, ballast, shingle, hoggins, hardcore, clinker, chalk, etc.

CLUBB, J., LTD., Dartford, Kent. (Tel.: Dartford 25431.) Pits in North Kent, Medway area and Sevenoaks district. All washed and crushed gravel aggregates, concreting and building sand.

DIAMOND TREAD CO. (1938), LTD., Ditton Court Quarry, Larkfield, near Maidstone. (Tel.: West Malling 3444.) Quarry owners, tarmacadam, bituminous macadam and dry road stone manufacturers and suppliers. Head Office: 21-22 Old Bailey, London, E.C.4. (Tel.: City 7001—10 lines.)

DIAMOND TREAD CO. (CHART), LTD., Swan Lane Quarries, Little Chart, Ashford, Kent. Quarry owners; tarmacadam, bituminous macadam and dry roadstone suppliers. Head Office: 21-22 Old Bailey, London, E.C.4. (Tel.: City 7001—10 lines.)

HALL AND CO., LTD., Canning Street, Maidstone. (Tel.: Maidstone 51051.) and at Folkestone and Hayes. Pits at Lunford, near Larkfield, Riverhead. Gravel aggregates, concreting, plastering and building sand. Surecrete precision-mixed concrete.

HARRIS, M. P. AND CO., LTD., Station Road, Paddock Wood, Kent. (Tel.: 385.) (See Sussex.)

LANCASHIRE

BROOMBYS, LTD., Sandisle, Milnthorpe (Tel.: 3251/2), Westmorland. (See Westmorland.)

BUCKTON QUARRY. Broken stone, all grades. (Tel.: Mossley 123.) Or write Main Road, Oldham.

CASTLETON SAND AND GRAVEL QUARRIES, LTD., Trows Lane, Castleton, near Rochdale. (Tel.: Castleton 57100.) Lee Quarries, Bacup. (Tel.: Bacup 287.) Washed pit sand, crushed washed stone aggregate, pit sand, ballast.

CROXEN GRAVEL, LTD., Cheadle, Stoke-on-Trent. (Tel.: Tean 393.) Manchester Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.

HARTLEY, JOHN, W., LTD., Lundsheld Quarry, Carnforth, Lancs. (Tel.: Carnforth 100.) Large producers of highest quality washed sands, clean washed natural pebble and crushed gravel aggregates for all construction purposes.

HILTON GRAVEL, LTD., Rice Street, Liverpool Road, Manchester, 3. (Tel.: Deansgate 5455 and 5456.) Quarries at Cheadle, Staffs. (Tel.: Tean 241.) and at Longton, Stoke-on-Trent. (Tel.: Longton 32196.)

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

HULLAND GRAVEL CO., LTD., Cheadle, Stoke-on-Trent. (Tel.: Cheadle 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester. (Tel.: Chorlton 27478.)

PENMAENMAWR AND WELSH GRANITE CO., LTD., all sizes and gradings of crushed granite aggregate. Immediate delivery ex stock. Liverpool and Preston Depots: Office: 7 Picton Road, Liverpool, 15. (Tel.: Sefton Park 7261.) Manchester Depot: Office: Cornbrook Road, Manchester, 15. (Tel.: Trafford Park 3830.)

TERN MILL SAND AND GRAVEL CO., LTD., Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

TRENTHAM GRAVEL CO., LTD., Lordsley Quarries, Willoughbridge, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed sand. Twice washed sharp concrete sand. Plant capacity: 2,000 tons per day.

WITHERS LIMESTONE, LTD., Back Lane Quarry, Carnforth. (Tel.: Carnforth 427.) Graded limestone aggregate to B.S.S., all sizes. Immediate delivery ex stock.

X.L. GRANITE (INGLETON), LTD., Head Offices: Clapham, via Lancaster. (Tel.: Clapham 318/9.) Works Tel.: Ingleton 231. All sizes and gradings of Ingleton granite aggregate.

LEICESTERSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) Best Leicester-shire grey granite, dry and coated gradings to any specification, cold asphalt and wet mix. Prompt rail-road delivery.

CLIFFE HILL GRANITE CO., LTD., Markfield, near Leicester. (Tel.: Markfield 561/2/3.) Granite aggregates to B.S.S. All sizes. Tarred and bituminous granite, concrete slabs and kerbs. In-house washed granite aggregate.

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298. Duston 505.) (See Northamptonshire.)

ENDSBY AND STONEY STANTON GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 20891.) Quarries at Enderby. London Offices: 29 Dorset Square, N.W.1. (Tel.: Amb. 1141.)

LEICESTERSHIRE

HILTON GRAVEL, LTD., Hemington Fields, near Shardlow, Derby. (Tel.: Shardlow 266.)

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

MOUNTSOREL GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 20891.) Quarries at Mountsorel, near Loughborough. Iain, pink granite, etc. speciality. London Office: 29 Dorset Sq., N.W.1. (Amb. 1141.)

WANLIP GRAVELS, LTD., Wanlip Road, Sutton, Leicestershire. Any size or grading, scientific, balanced ballast. All to B.S.S. (Tel.: Sutton 2327 and 2797.)

WREAKE VALLEY GRAVELS CO., LTD., Metheringham, Leicestershire. Pits—Rotherby 205 or head office, Melton 2488/9. Iain, pink granite, etc. speciality. sand, transit mixed concrete.

LINCOLNSHIRE

CONINGSBY SUPPLY CO., LTD., Registered Office: The Broadway, Woodhall Spa, Lincs. (Tel.: Woodhall Spa 2322.) Screened limestone, hardcore, pitching, filling, flint, hoggins. Ex quarries or delivered. **DOY-MAC (PRODUCTS), LTD.**, Tallington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)

GIBBONS, F. B. AND SONS, LTD., Registered Office: Welby House, Market Deeping, near Peterborough. (Tel.: Market Deeping 3321/2383.) Pits at Luffington, near Peterborough. (Tel.: Market Deeping 2210.) All grades washed sand and aggregate.

HARTSHOLME GRAY AND SAND CO., LTD., Hartsholme Wood, Doddington Road, Lincs. Selling agents: Hartsholme Sales, Ltd., 17 West Parade, Lincoln. (Tel.: Lincoln 23391.)

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

HURDIS, J. W., LTD., Victoria Street, Grimsby. (Tel.: Grimsby 3657.) and Caistor (Tel.: Caistor 281.) Building, plastering, concreting and also gravel, ballast, hoggins and roadmaking materials.

PETERBOROUGH QUARRIES, LTD., Sandylands, Mavey, Peterborough. (Tel.: Market Deeping 2355—3 lines.) Quarry at Ropley, all grades of hardcore and broken stone. (See also Northants.)

POLLARD, C. AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. Pits at Tallington, near Stamford, Lincs. (Tel.: Market Deeping 2140.) All grades washed sand and aggregate. For "Supercrete" ready concrete, phone Market Deeping 3132.

SCRIBTON BROTHERS (BARTON-UPON-HUMBER), LTD., 21 Castledyke West, Barton-on-Humber, Lincs. (Tel.: Barton 2189.) All grades washed sand and gravel, roadstone, hardcore, washed silica sand.

TRENTFORD GRAVELS, LTD., Head Office: Deansgrove, Grimsby. (Tel.: Grimsby 5354.) Washed and graded gravel and sand, roadstone, hardcore, slag, tarm, ashes, etc. Pits and quarries throughout the county.

LONDON

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

BUCKERICKS COMPANY, LTD., 57 Piazza Chambers, Garden, London, W.1. (Tel.: Covent Garden 0534.) All grades of washed aggregate, sand, building sand, asphalt, grit. Sterilised dry sand accurately graded to buyers' requirements.

COX, M. AND SON, LTD., 33 Southampton Way, Camberwell, S.E.5. (Tel.: Rodney 2215—3 lines.)

DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, N.W.3. (Tel.: HAMPSHIRE 8044/8.) Granite limestone or slag, coated or dry, all sizes and pitching, granite kerb and setts, felspar quartz and other minerals for road or London use.

DORSET Limestones, LTD., Bumpers Lane, Easton, Portland, Dorset. (Tel.: Portland 2207/8.) (For details, see Dorset.)

DRINKWATER, W. W. (WILLESDEN), LTD., Dudder Hill Lane, Willesden, N.W.10. (Tel.: GLADSTONE 6400/5.) Pits: Rush Green, Denham, Bucks. (Tel.: Denham 2212/3.) Also Staines Road, Hounslow Heath, Middlesex. (Tel.: Hounslow 6222/3.)

GABRIEL, C., LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.

GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.

HALL AND CO., LTD., Chantry House, Eccleston Street, S.W.1. (Tel.: Sloane 7122.) and at Earl Dulwich, Poplar and Wandsworth. Gravel aggregates, concreting, plastering and building sand.

HARTIGAN, G. F. X., LTD., Washed sharp sand to B.S.S. 882. (See Buckinghamshire.)

KEEN, W. J. AND SONS, 18 Granville Road, Epsom, Essex. (Tel.: Epsom 2520.) All sands, ballast, shingle and hardcore supplied.

LONDON BALLAST CO., LTD., (Tel.: Paddington 5046.) 155A Porchester Terrace North, Paddington, W.2.

READ, P. T., LTD., Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingles supplied and delivered; also ready mixed concrete. Pits: Fairlop Airfield, Forest Road, Ilford, Essex. (Tel.: Harput 6112/3.)

SHAKEMANTLE QUARRY CO., LTD., Cinderford, Glos. (Tel.: Cinderford 3197.) "Doura" Facing, Engineering and Common Bricks in terra-cotta, red and golden brown. (See Glos.)

MERIONETHSHIRE

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel.: 961.) Salop.

MIDDLESEX

CROSS, GEO. C. AND CO., LTD., Uxbridge Road, Southall. (Tel.: Southall 2264/5/6.) Concrete aggregates, hardcore, excavations, demolitions.

DRINKWATER, W. W. (WILLESDEN), LTD., Staines Road, Hounslow Wm., Middx. (Hounslow 6222/3.)

GABRIEL, C., LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.

GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.

CONTRACTORS' GUIDE TO AGGREGATES

MIDDLESEX

GRUNDON, S. 100/104 Harrington Road, Hillingdon, Middlesex. (Tel.: Uxbridge 3651/2/3.) Sand, ballast, shingle, hardcore, ashes, excavation and demolition.

HALL AND CO. LTD. Chantry House, Eccleston Street, S.W.1. (Tel.: Sloane 7122.) and at Ashford and Brentford. Pits, Bedford and Shepperton. Gravel aggregates, concreting, plastering and building sand.

LONDON BALLAST CO. LTD. (Tel.: Paddington 5064.) 155A Porchester Terrace North, Paddington, W.2.

THICKENHAM GRAVEL CO. LTD. Feltham Hill Road, Hanworth. (Tel.: Feltham 2638.)

NEAP, P. T. LTD. Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingles supplied and delivered; also ready-mixed concrete. Pits: Edmonstone Gravel Pits, Montagu Road, N.9. (Tel.: Shoreditch 9128/9.) and Fairlop Airfield, Forest Road, Ilford. (Tel.: Haultail 6111/2.)

STUART MACEY, LTD. Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)

MID-WALES

BENGRY AND SONS, LTD. Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

NASH ROCKS STONE AND LIME CO. LTD. Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO. LTD. Quarries in Herefordshire. (Tel.: Kingston 421.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO. Admaston, Wellington (Tel.: 961), Salop.

TERN HILL SAND AND GRAVEL CO. LTD. Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

MONMOUTHSHIRE

MONMOUTHSHIRE ASSOCIATED QUARRIES, LTD. Head Office: 38 Chestrow Road, Newport, Mon. (Tel.: Newport 58311/2.) Suppliers of all grades of concrete aggregates, and metallizing, pitching stone, tarmacadam and bituminous macadam in limestone, dolomite and blue pennant stone. Quarries throughout the county.

SHAKEMANTLE QUARRY CO. LTD. Cinderford, Glos. (Tel.: Cinderford 3197.) "Doura" Facing. Engineering and Common Bricks in terra-cotta, red and golden brown. (See Glos.)

WHITELIFF QUARRIES AND BRICKWORKS, LTD. Colford, Glos. (Tel.: 3158/9.) (See Gloucestershire.)

MONTGOMERYSHIRE

NASH ROCKS STONE AND LIME CO. LTD. Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

SALOP SAND AND GRAVEL SUPPLY CO. Admaston, Wellington (Tel.: 961), Salop.

NORFOLK

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD. near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

JOHNSON, P. C. H. LTD. Station Road, Terrington St. Clement 248.) Washed and screened gravel roadstone, washed sharp and fine sands.

ST. IVES SAND AND GRAVEL CO. LTD. 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4 and Coney Weston 12.) Pits at St. Ives and Knettishall, near Thetford.

SNITTERTON STONE QUARRIES, LTD. Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1208/9.) Pits at Snitterton. Concrete aggregates, building sand.

THORPE GRAVEL PITS LTD. Harvey Lane, Norwich. (Tel.: Norwich 33243/4.) Washed and graded aggregates, stone and gravel delivered to all parts of Norfolk and Suffolk.

NORTHAMPTONSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD. near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

BICESTER STONE CO. LTD. Stratton Audley 391/2.) Manufacturers and suppliers of all grades limestone, tarmacadam, dry, pitching stone, hardcore, etc.

BRAYBROOK, E. W. LTD. Newton Road, Higham Ferrers, Northants. (Tel.: Rushden 3344 and 3345.) All grades of washed and graded aggregates to B.S.S., building sand, hardcore.

DOW-MAC (PRODUCTS), LTD. Tillington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)

DUSTON STONE QUARRIES, LTD. New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) Producers of building and walling stone, roadstone, hardcore, broken stone, ashes, sand, gravel and hoggins. Immediate delivery throughout Northamptonshire.

FERRERSAND AGGREGATES, LTD. Northampton Road Quarries, Rushden, Northants. (Tel.: Rushden 2354/5.) Largest producers in the county of all grades of high quality concrete aggregate to B.S.S. Delivers throughout Northamptonshire and adjoining counties.

GIBBONS, F. B. AND SONS, LTD. Welby House, Market Deeping, Peterborough. (Tel.: Market Deeping 3321/2363.) (See Lincolnshire for details.)

HOVERINGHAM GRAVELS, LTD. Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details see Nottinghamshire.)

KETTON STONE CO. (Prop.: Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

MACKANESS, J. LTD. Ransome Road, Northampton. (Tel.: Northampton 589.) Producers of all grades of washed aggregates. Building sand. Mixmortar (lime and mortar). Prompt deliveries.

NENE BARGE AND LIGHTER CO. LTD. Market Chambers, Peterborough. (Tel.: 5534/5.) and Ship End Quarries, Wansford, near Peterborough. (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.

NORTHAMPTONSHIRE

NEWARK (PETERBOROUGH) SAND AND GRAVEL CO. LTD. 127 Eastgate Road, Peterborough. (Tel.: Peterborough 2091.) All grades washed and screened gravel and sand.

PETERBOROUGH QUARRIES, LTD. Sandylands, Maxey, Peterborough. (Tel.: Market Deeping 2355.) Eight quarries supplying all grades of hardcore and broken stone. Also Wetmix at Yarwell, Wansford. All grades gravel and sand at Maxey.

POLLARD, C. AND SON (TALLINGTON), LTD. Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

STORTON, F. E. LTD. Weedon Road, Northampton. (Tel.: Northampton 3358.) Producers of washed gravel and sand to B.S.S.

NORTH WALES

CAWOOD, WHARTON AND CO. LTD. Plastyll Gwyn Quarry, Llanarmon, near Mold. (Tel.: Llanarmon-yn-Ial 22.) Crushed limestone and tarred macadam, all grades.

CHESHIRE AND NORTH WALES TARRED MACADAM CO. LTD. Llanarmon, near Mold. (Tel.: Llanarmon-yn-Ial 43.) Hard, broken limestone; dry and coated to B.S.S. Inquiries to Registered Office—Market Chambers, Tower Square, Tunstall, Stoke-on-Trent. (Tel.: Stoke-on-Trent 8809/4.)

ENSTON BROS., Llwyn Isaf Quarry, Clynogfawr, Caernarvon. (Tel.: Clynogfawr 297/8.) All sizes crushed, washed natural sand and gravel. Precast concrete products, ex our Griffiths Crossing Factory, Caernarvon. (Tel.: Caernarvon 2535/6.) Crushed granite ex our quarry, Penwynn and Gwydyr Quarries, Llanfrolw, Llanfrolw, Denbighshire. (Llanfrolw 38.)

PENMAENMAWR AND WELSH GRANITE CO. LTD. Quarries at Penmaenmawr (Tel.: 2256/8), and at Trevor (Tel.: Clynogfawr 223), Caernarvonshire. All sizes and gradings of crushed granite aggregate. Any quantity, day or immediate delivery ex stock. Coated granite also available.

TERN HILL SAND AND GRAVEL CO. LTD. Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

NOTTINGHAMSHIRE

AIZLEWOOD, DOUGLAS E., Bow Bridge, Rotherham. (Tel.: Rotherham 2622.) Crushed and graded limestone; all grades of washed gravel and sand.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD. near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

GLEN QUARRIES, LTD. Central Chambers, Wellgate, Rotherham. (Tel.: Rotherham 5223.) Crushed and graded stone, concrete sand, building sand, plastering sand and crushed gravel; could be collected ex quarry or delivered.

GUNTHORPE GRAVELS, LTD. (Tel.: Nottingham 77357; and Works: Lowdham 2131.) An associate company of T. C. Campbell, Ltd. All grades washed gravel and sand to B.S.S.

HOVERINGHAM GRAVELS, LTD. Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) Quarries at Hoveringham, Holme Pierrepont, Colwick, Bleasby and Newark. Other quarries throughout the county—delivers in 21 counties. All grades of washed gravel and sand to any specification. Crushed quartzite for surface dressing of roads a speciality. Combined plant capacity 20,000 tons per day.

NEWARK GRAVEL AND CONCRETE CO. LTD. Grove Street, New Balderton, Newark, Notts. (Tel.: Newark 401.) All grades washed sand and aggregates.

NORTH NOTTS. GRAVEL CO. LTD. Belmoor, Retford, Notts. (See Yorkshire.)

SALISBURY AND WOOD, LTD., Matlock. (Tel.: 272/273.) (For details, see Derbyshire.)

OXFORDSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD. near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

BICESTER STONE CO. LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 391/2.) Manufacturers and suppliers of all grades limestone, tarmacadam, dry, pitching stone, hardcore, etc.

CURTIS, J. AND SONS, LTD., Botley Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates. Pits at Radley, near Abingdon. (Tel.: Abingdon 441.)

DANGERFIELD, F. J. AND CO. LTD., 261A Finchley Road, London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)

GRUNDON, S. (EWELEME), LTD., Eweleme, Oxon. (Tel.: Eweleme 20 and 37.) London Office (Tel.: Uxbridge 36511/2/3.) All grades washed aggregates. Path hoggins, broken stone, building sand.

HAINES, H. (WITNEY), LTD., Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and walling stone. Cotswold building and walling stone.

HALL AND CO. LTD., Cardiff Road, Reading. (Tel.: 5045/8.)

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

SNITTERTON STONE QUARRIES, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1208/9.) Roadstone, Cotswold building and walling stone.

RADNORSHIRE

BENGRY AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

NASH ROCKS STONE AND LIME CO. LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) See Herefordshire for details.

OLD RADNOR TRADING CO. LTD., Quarries in Radnorshire. (Tel.: Kingston 421.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington (Tel.: 961), Salop.

RUTLAND

GIBBONS, F. B. AND SONS, LTD., Welby House, Market Deeping, Peterborough. (Tel.: Market Deeping 3321/2363.) (See Lincolnshire for details.)

HOVERINGHAM GRAVELS, LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

KETTON STONE CO. (Prop.: Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

PETERBOROUGH QUARRIES, LTD., Sandylands, Maxey, Peterborough. (Tel.: Market Deeping 2355.) Quarry at Greatham, all grades of broken stone and hardcore. (See also Northamptonshire.)

POLLARD, C. AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

SHROPSHIRE

BALLIDON QUARRIES, LTD., Ballidon, near Ashbourne, Derbyshire. (Tel.: Parwich 201 and 202.) Clean and graded dry limestone to B.S.S., all sizes; coated limestone to B.S. 802 and 1621 and wetmix; large output; reliable deliveries.

BENGRY AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

DORRINGTON SAND AND GRAVEL QUARRIES, near Shrewsbury. (Tel.: Dorington 276.) Supplies of ready mixed concrete, building sand, washed sand and gravel.

NASH ROCKS STONE AND LIME CO. LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO. LTD., Kingston. (Tel.: 421.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington (Tel.: 961), Salop.

TERN HILL SAND AND GRAVEL CO. LTD., Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

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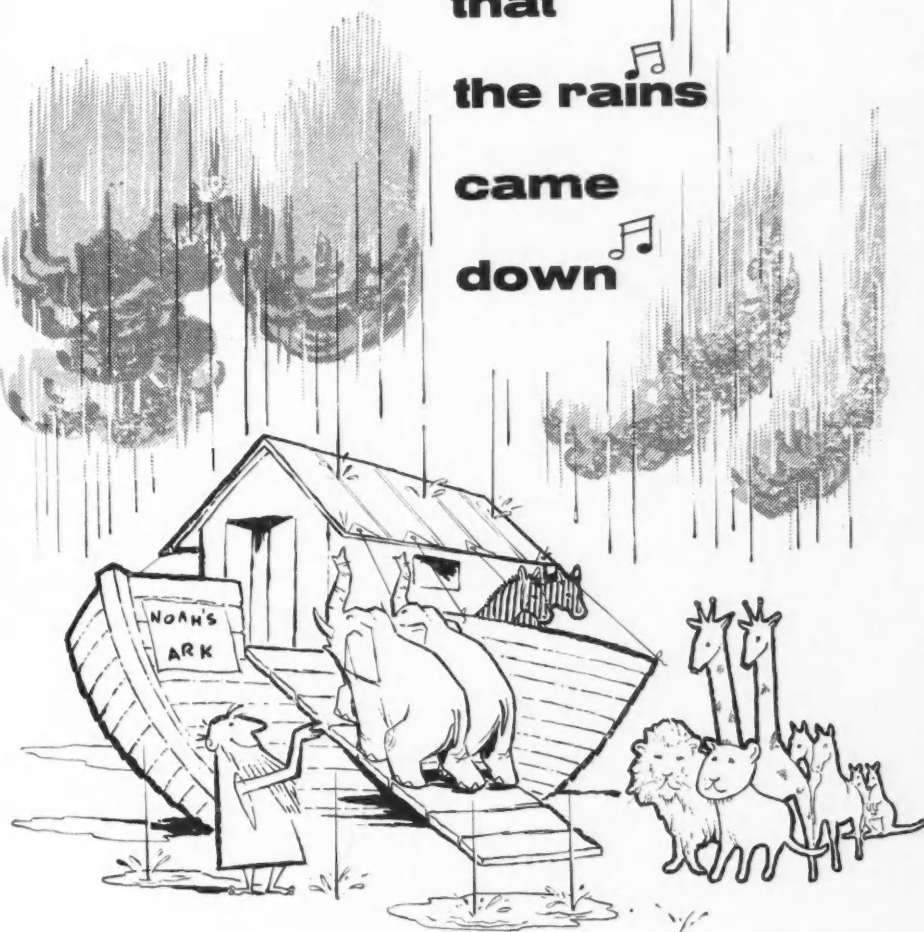
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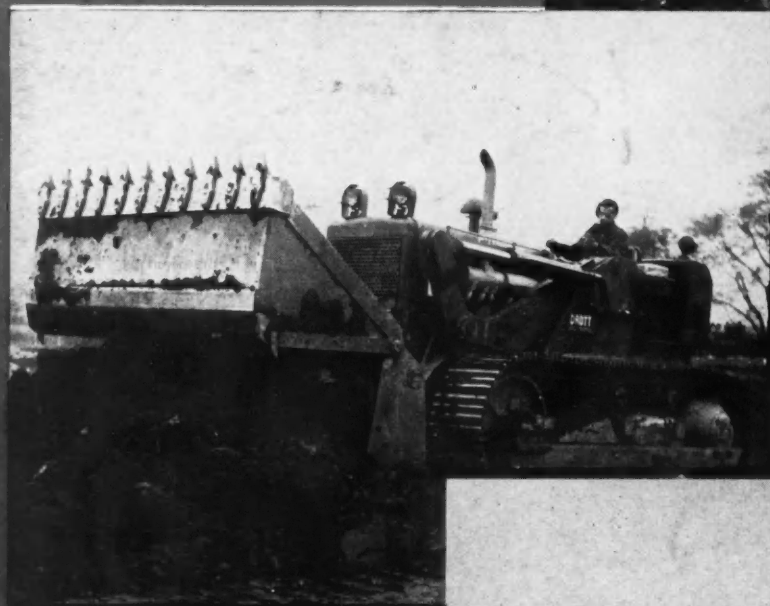
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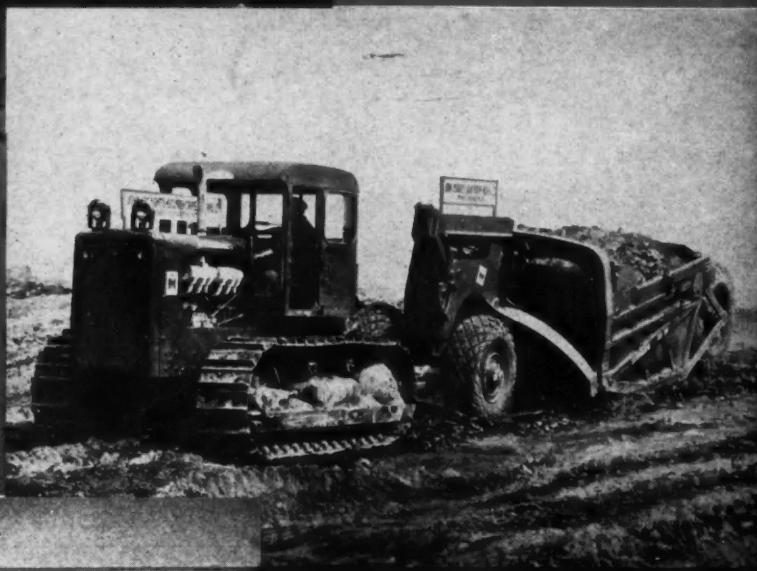


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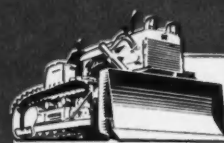


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